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# R, D, T & E PROGRAMS (R-1)

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## DEPARTMENT OF DEFENSE BUDGET FOR FISCAL YEARS 1990 AND 1991

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JANUARY 9, 1989

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# RDT&E PROGRAMS (R-1)

## BUDGET ESTIMATE DISTRIBUTION:

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DIR FOR P/S (P/B)	1
DIR FOR R&D (P/B)	8
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ASD (LA)	1
ASD (SO/LIC)	1
DIR (T&E)	1
DIR (OT&E)	1
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DoDIG	1
DARPA	1
DCA	1
DIA	1
DLA	1
DMA	1
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DIR (OT&E)	1
DIR (PA&E)	6
DoDIG	1
DARPA	1
DCA	1
DIA	1
DLA	1
DMA	1
DNA	1
NSA	1
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# Preface

The R.D.T. & E. Programs (R-1) exhibit is derived from and consistent with the DoD Five Year Defense Program R.D.T. & E. Annex data base.

The R-1 is provided annually to the DoD oversight committees of the Congress coincident with the transmittal by the President of the Budget of the United States Government. It is accompanied by an automated data base submission to the House Committee on Administration for input to the House Information System. An unclassified version is provided to OASD(PA) for use by non-DoD activities.

*Historical data, Army budgets, Navy budgets, Air Force budgets, defense agreements*

Office of the Comptroller of the Department of Defense

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Department of Defense  
FY 1990/1991 R D T & E Program

Exhibit R-1

## Summary

Date: 9 Jan 1989

Thousands of Dollars

	FY 1988	FY 1989	FY 1990	FY 1991
<b>Summary By Appropriation</b>				
Research Development Test & Eval Army	4,676,698	5,117,396	5,603,000	5,873,700
Research Development Test & Eval Navy	9,478,546	9,344,589	10,184,400	9,636,800
Research Development Test & Eval AF	15,057,562	14,678,763	14,772,200	13,784,300
Research Development Test & Eval Def Ag	7,561,825	8,180,610	9,995,500	11,352,500
Director of Test & Eval Defense	182,116	149,320	316,400	444,700
Director of Operational Test & Evaluation	70,221	70,958	153,000	160,800
<b>Total Research, Development, Test &amp; Evaluation</b>	<b>37,026,968</b>	<b>37,541,636</b>	<b>41,024,500</b>	<b>41,251,800</b>
<b>Summary Recap of Research Categories</b>				
Research	898,940	955,513	929,892	962,894
Exploratory Development	2,411,472	2,522,201	2,362,613	2,451,004
Advanced Development	12,229,168	10,385,862	12,390,565	12,654,800
Engineering Development	9,487,705	11,620,108	12,585,516	12,653,746
Management and Support	2,728,282	2,589,161	2,823,292	2,910,639
Research and Development (FYDP Program 6)	27,755,567	28,072,845	31,091,878	31,633,083
Operational Systems Development	9,271,401	9,468,791	9,932,622	9,618,717
<b>Total Research, Development, Test &amp; Evaluation</b>	<b>37,026,968</b>	<b>37,541,636</b>	<b>41,024,500</b>	<b>41,251,800</b>

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## UNCLASSIFIED

Department of Defense  
FY 1990/1991 R D T & E Program

Exhibit R-1

## Summary

Date: 9 Jan 1989

Thousands of Dollars

	FY 1988	FY 1989	FY 1990	FY 1991
Summary Recap of Budget Activities				
Technology Base	3,310,412	3,477,714	3,292,505	3,413,898
Advanced Technology Development	5,355,756	5,896,896	7,840,329	9,074,431
Strategic Programs	7,226,532	6,480,572	5,628,041	4,495,994
Tactical Programs	11,998,277	13,168,507	14,942,496	14,725,609
Intelligence and Communications	4,885,227	4,499,161	4,697,088	4,836,702
Defensewide Mission Support	4,250,764	4,018,786	4,624,041	4,705,166
Total Research, Development, Test & Evaluation	37,026,968	37,541,636	41,024,500	41,251,800

## Summary Recap of FYDP Programs

Strategic Forces	755,757	681,583	739,631	546,877
General Purpose Forces	1,752,865	1,958,688	2,357,651	2,259,080
Intelligence and Communications	6,235,140	6,191,543	6,335,428	6,271,823
Airlift/Sealift	26,968	12,808	14,784	12,845
Guard and Reserve	59,414	82,560	29,945	4,932
Research and Development (FYDP Program 6)	27,755,567	28,072,845	31,091,878	31,633,083
Central Supply and Maintenance	174,689	199,652	223,852	244,034
Administration and Assoc Activities			4,148	4,360
Support of Other Nations	3,550	3,548	5,525	6,247
Special Operations Forces	263,018	338,409	221,660	268,519
Total Research, Development, Test & Evaluation	37,026,968	37,541,636	41,024,500	41,251,800

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Department of the Army  
FY 1990/1991 R D T & E Program

Exhibit R-1

## Summary

Date: 9 Jan 1989

Thousands of Dollars

## Summary Recap of Research Categories

	FY 1988	FY 1989	FY 1990	FY 1991
<b>Research</b>				
Exploratory Development	167,568	172,675	208,823	213,852
Advanced Development	553,111	580,781	580,467	588,377
Engineering Development	1,090,520	1,117,941	1,072,888	1,025,338
Management and Support	1,067,391	1,521,492	1,799,960	2,128,580
	1,112,147	1,103,593	1,246,833	1,294,268
<b>Research and Development (FYDP Program 6)</b>				
Operational Systems Development	3,990,737	4,476,482	4,906,971	5,250,196
	685,961	640,914	696,029	623,504
<b>Total Research Development Test &amp; Eval Army</b>	<b>4,676,698</b>	<b>5,117,396</b>	<b>5,603,000</b>	<b>5,873,700</b>

## Summary Recap of Budget Activities

	FY 1988	FY 1989	FY 1990	FY 1991
<b>Technology Base</b>				
Advanced Technology Development	720,679	733,456	787,290	802,029
Strategic Programs	355,155	442,008	463,684	502,260
Tactical Programs	118,462	69,763	73,971	56,439
Intelligence and Communications	2,249,677	2,702,651	2,913,016	3,107,712
Defensewide Mission Support	105,491	52,105	89,782	81,158
	1,127,234	1,117,413	1,275,257	1,324,102
<b>Total Research Development Test &amp; Eval Army</b>	<b>4,676,698</b>	<b>5,117,396</b>	<b>5,603,000</b>	<b>5,873,700</b>

## Summary Recap of FYDP Programs

	FY 1988	FY 1989	FY 1990	FY 1991
<b>Strategic Forces</b>				
General Purpose Forces	86,861	46,695	48,823	31,281
Intelligence and Communications	354,070	381,240	447,583	414,630
Research and Development (FYDP Program 6)	120,669	60,588	94,262	86,498
Central Supply and Maintenance	3,990,737	4,476,482	4,906,971	5,250,196
Special Operations Forces	20,904	19,755	34,454	36,085
	103,257	132,636	70,907	55,010
<b>Total Research Development Test &amp; Eval Army</b>	<b>4,676,698</b>	<b>5,117,396</b>	<b>5,603,000</b>	<b>5,873,700</b>

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Department of the Army  
FY 1990/1991 R D T & E Program

Exhibit R-1

Appropriation: 2040 A Research Development Test &amp; Eval Army

Date: 9 Jan 1989

Program Line Element No	Item Nomenclature	Act	FY 1988	FY 1989	FY 1990	FY 1991 C
						Thousands of Dollars
1	0601101A In-House Laboratory Independent Research	1			9,079	9,196 U
2	0601102A Defense Research Sciences	1	167,568	172,675	175,885	182,216 U
3	0601103A University Research Sciences	1			21,859	22,240 U
4	0602105A Materials Technology	1	12,341	11,038	13,391	13,638 U
5	0602120A Electronic Survivability and Fuzing Technology	1	42,560	37,294	28,187	27,966 U
6	0602122A Survivability Enhancement	1	5,580	5,626	5,949	6,135 U
7	0602211A Aviation Technology	1	41,573	45,669	41,492	42,086 U
8	0602303A Missile Technology	1	28,595	21,828	31,008	30,543 U
9	0602307A Laser Weapons Technology	1	3,753	6,335	552	545 U
10	0602601A Combat Vehicle and Automotive Technology	1	26,392	22,196	37,219	40,278 U
11	0602618A Ballistics Technology	1	25,802	27,239	30,334	28,980 U
12	0602622A Chemical, Smoke and Equipment Defeating Technology	1	41,663	41,334	53,940	53,942 U
13	0602623A Joint Service Small Arms Program	1	12,245	14,115	5,126	5,248 U
14	0602624A Weapons and Munitions Technology	1	25,671	31,060	39,104	39,972 U
15	0602705A Electronics and Electronic Devices	1	21,617	21,676	18,221	18,393 U
16	0602709A Night Vision Technology	1	23,706	25,325	19,269	19,789 U
17	0602716A Human Factors Engineering Technology	1	15,564	14,952	15,000	15,323 U
18	0602720A Environmental Quality Technology	1	9,706	9,499	11,904	12,198 U
19	0602727A Non-System Training Device Technology	1	3,597	3,412	4,408	4,518 U
20	0602782A Command, Control, Communications Technology	1	13,230	12,496	21,903	23,183 U

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Line No	Program Element Number	Item Nomenclature	Act	FY 1988	FY 1989	FY 1990	FY 1991 C	Thousands of Dollars
21	0602783A	Computer and Software Technology	1	8,379	6,425	5,528	5,662	U
22	0602784A	Military Engineering Technology	1	37,297	39,867	45,237	47,744	U
23	0602785A	Manpower/Personnel/Training Technology	1	15,268	17,812	17,148	17,053	U
24	0602786A	Logistics Technology	1	34,075	39,870	37,343	37,854	U
25	0602787A	Medical Technology	1	104,497	105,713	96,366	95,510	U
26	0602788A	TRACTOR FLOP	1			1,838	1,817	U
<b>Technology Base</b>								
27	0603001A	Logistics Advanced Technology	2	720,679	733,456	787,290	802,029	U
28	0603002A	Medical Advanced Technology	2	34,885	34,327	34,671	37,244	U
29	0603003A	Aviation Advanced Technology	2	38,026	36,162	31,984	34,156	U
30	0603004A	Weapons and Munitions Advanced Technology	2	28,002	76,511	48,774	33,243	U
31	0603005A	Combat Vehicle and Automotive Advanced Technology	2	39,159	58,789	139,547	164,390	U
32	0603006A	Command, Control, Communications Advanced Technology	2	6,478	7,699	11,652	11,109	U
33	0603007A	Human Factors/Personnel/Training Advanced Technology	2	27,874	29,398	18,896	19,737	U
34	0603009A	Classified Program	2					U
35	0603012A	TRACTOR HOLE	2			9,193	4,541	U
36	0603013A	TRACTOR DIRT	2			1,838	1,180	U
37	0603102A	Materials and Structures Advanced Technology	2	7,966	6,902	4,689	5,150	U
38	0603105A	Acquired Immune Deficiency Syndrome (AIDS) Research	2	9,654	27,000			U

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Department of the Army  
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Line No	Program Element Number	Item Nomenclature	Act	FY 1988	FY 1989	FY 1990	FY 1991 C
Thousands of Dollars							
39	0603270A	EW Technology	2	26,626	38,339		U
40	0603313A	Missile and Rocket Advanced Technology	2	19,873	13,520	10,878	9,839 U
41	0603314A	Directed Energy	2		7,749	26,135	56,439 U
42	0603324A	Army Development and Employment Agency	2	7,206	4,988	3,947	3,481 U
43	0603606A	Landmine Warfare and Barrier Advanced Technology	2	10,491	9,035	11,272	13,982 U
44	0603607A	Joint Service Small Arms Program	2	8,693	9,517	6,826	5,872 U
45	0603710A	Night Vision Advanced Technology	2	23,376	23,552	21,781	23,294 U
46	0603733A	Environmental Quality Control Equipment	2	3,050	7,297		U
47	0603734A	Military Engineering Advanced Technology	2	3,826	2,327	3,818	3,721 U
48	0603742A	Advanced Electronic Devices Development	2	5,203	6,372	6,849	7,109 U
49	0603758A	Army Battlefield Technology Integration	2	12,347	8,558	2,600	2,534 U
50	0603759A	Chemical Biological Defense and Smoke Advanced Technology	2	2,673	3,433	3,989	3,970 U
51	0603768A	Balanced Technology Initiative	2	16,039			U
52	0603772A	Advanced Tactical Computer Science and Technology	2	5,385	6,469	4,480	4,719 U
53	1140011A	Advanced Special Operations Research, Development and Acquisition	2	7,757	14,228	12,371	8,800 U
		Advanced Technology Development		355,155	442,008	463,684	502,260
54	0102814A	Special Programs	3				U
55	0303152A	World-Wide Military Command and Control Systems, Information System	3				U
		Strategic Programs		118,462	69,763	73,971	56,439

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Department of the Army  
FY 1990/1991 R D T & E Program

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Line No	Program Element Number	Item Nomenclature	Act	FY 1988	FY 1989	FY 1990	FY 1991 C
Thousands of Dollars							
56	0603302A	Joint Tactical Missile Defense Program	4	21,818	31,341	36,096	36,003 U
57	0603303A	Surface-to-Surface Missile Rocket System	4	23,565	35,992	47,175	47,207 U
58	0603604A	Nuclear Munitions and Radicals - Adv Dev	4	4,291	8,024		U
59	0603612A	Advanced Anti-Tank Weapon System	4	33,173	46,994	69,598	24,777 U
60	0603619A	Landmine Warfare and Barrier - Adv Dev	4	15,612	12,427	4,247	5,982 U
61	0603627A	Smoke, Obscure and Equipment Defeating Systems Adv Dev	4	7,924	4,974	8,796	12,215 U
62	0603639A	Aramament Enhancement Initiative	4				U
63	0603642A	Medium Surface-to-Air Missile	4			4,740	6,812 U
64	0603645A	Armored Family of Vehicles - Adv Dev	4	988			U
65	0603706A	Identification-Friend-or-Foe - Adv Dev	4	9,883	14,729		U
66	0603713A	Army Data Distribution System	4	28,080	19,840	19,414	13,145 U
67	0603730A	Tactical Surveillance System - Adv Dev	4	33,769	29,733		U
68	0603736A	Non-System Training Devices - Adv Dev	4		856		U
69	0603740A	Air Defense Command, Control and Intelligence (C2I) - Adv Dev	4	4,585			U
70	0603745A	Tactical Electronic Support Systems - Adv Dev	4	5,668	7,571		U
71	0603747A	Soldier Support and Survivability	4	3,919	3,411	6,822	8,640 U
72	0603754A	Classified Program - Adv Dev	4				U
73	0603757A	Forward Area Air Defense (FAAD) System	4	158,253	96,899	20,210	U
74	0603766A	Tactical Electronic Surveillance System - Adv Dev	4	11,823	11,676		U
75	0603774A	Night Vision Systems Advanced Development	4	3,297	3,902	5,087	5,232 U

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Line Element No	Program Element No	Item Nomenclature	Act	Thousands of Dollars					U
				FY 1988	FY 1989	FY 1990	FY 1991 c		
76	0603775A	Light Armored Vehicle/Weasel Evaluation	4	988					U
77	0603776A	Airborne Adverse Weather Weapons System	4	79,847	86,641	23,162			U
78	0603777A	Follow-On LANCE - Adv Dev	4		7,440				U
79	0603801A	Aviation - Adv Dev	4	3,390	4,318	22,971	15,073		U
80	0603802A	Weapons and Munitions - Adv Dev	4	13,916	22,185	48,086	47,635		U
81	0603803A	Chemical Systems - Adv Dev	4	18,294		7,211	27,669		U
82	0603804A	Logistics and Engineer Equipment - Adv Dev	4	15,458	12,832	17,713	15,892		U
83	0603805A	Combat Service Support Computer System Evaluation and Analysis	4	1,181	1,414	6,263	8,089		U
84	0603806A	Chemical/Biological Defense Equipment - Adv Dev	4	10,528	7,319	20,001	24,210		U
85	0603807A	Medical Systems - Adv Dev	4	46,285	36,122	27,305	28,418		U
86	0603808A	Classified Program	4			29,092	16,997		U
87	0604202A	Aircraft Weapons	4	9,481	4,436	9,596	7,517		U
88	0604216A	Aircraft Propulsion System	4	97,578	55,492	51,703	53,042		U
89	0604223A	Light Armed Scout Helicopter	4	29,649	123,932	240,728	446,552		U
90	0604270A	Ew Development	4	34,657	65,767				U
91	0604306A	STINGER	4	8,882					U
92	0604310A	Heliborne Missile - HELLFIRE	4	2,405	3,000				U
93	0604313A	GRASS BLADE	4	4,895	4,693				U
94	0604321A	Joint Tactical Fusion Program	4	150,624	127,039				U
95	0604324A	Army Tactical Missile System (Army TACMS)	4	100,214	75,981	46,761			U

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Line No	Program Element Number	Item Nomenclature	Act	FY 1988	FY 1989	FY 1990	FY 1991	•
								Thousands of Dollars
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96	0604603A	Nuclear Munitions and Radiac - Eng Dev	4	18,582	7,970			U
97	0604604A	Medium Tactical Vehicles	4	9,790	24,810	18,372	6,943	U
98	0604609A	Smoke, Obscurant and Equipment Systems - Eng Dev	4	7,060	8,333	14,225	11,149	U
99	0604611A	Advanced Anti-Tank Weapon System - Eng Dev	4		109,902	158,694	44,969	U
100	0604619A	Landmine Warfare	4			23,779	29,758	U
101	0604622A	Heavy Tactical Vehicles	4	4,895	28,666	5,414		U
102	0604630A	MIAI Development Program	4				45,767	U
103	0604702A	Joint Tactical Information Distribution System	4	4,217				U
104	0604709A	Identification-Friend-or-Foe - Eng Dev	4	16,644	25,605	25,126	21,256	U
105	0604710A	Night Vision Systems - Eng Dev	4	13,901	17,588	19,354	17,512	U
106	0604713A	Combat Feeding, Clothing, and Equipment	4	2,622	2,405	5,930	6,340	U
107	0604715A	Non-System Training Devices - Eng Dev	4	27,474	21,762	17,124	32,352	U
108	0604718A	Physical Security	4	2,974				U
109	0604722A	Education and Training Systems Development	4	5,333	6,834			U
110	0604723A	Special Purpose Detectors	4	1,400	483	485	500	U
111	0604726A	Meteorological Equipment and Systems	4	585	1,602			U
112	0604740A	Tactical Surveillance System - Eng Dev	4	7,668	9,726			U
113	0604741A	Air Defense Command, Control and Intelligence - Eng Dev	4	86,605	92,423	71,691	75,650	U
114	0604746A	Automatic Test Equipment Development	4	6,012	9,327	10,269	9,427	U
115	0604754A	Classified Program - Eng Dev	4					U

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Department of the Army  
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Program Line Element No	Item Nomenclature	Act	FY 1988	FY 1989	FY 1990	FY 1991 c
			Thousands of Dollars			
116 0604766A	Tactical Electronic Surveillance System - Eng Dev	4	18,447	17,302		U
117 0604770A	Joint Surveillance/Target Attack Radar System	4	18,011	22,782	39,659	50,988 U
118 0604779A	Joint Interoperability of Tactical Command & Control Systems (JINTACCS)	4	7,274	9,496	4,622	4,897 U
119 0604801A	Aviation - Eng Dev	4	8,555	10,954	16,593	19,639 U
120 0604802A	Weapons and Munitions - Eng Dev	4	11,950	11,942	9,364	6,428 U
121 0604803A	Chemical Systems - Eng Dev	4	6,993	33,813	31,444	6,364 U
122 0604804A	Logistics and Engineer Equipment - Eng Dev	4	11,460	13,504	32,532	26,155 U
123 0604805A	Command, Control, Communications Systems - Eng Dev	4	16,475	10,260	11,893	1,407 U
124 0604806A	Chemical/Biological Defense Equipment - Eng Dev	4	23,703	13,190	41,562	36,090 U
125 0604807A	Medical Materiel/Medical Biological Defense Equipment - Eng Dev	4	15,130	19,972	19,569	21,318 U
126 0604808A	Landmine Warfare/Barrier - Eng Dev	4	14,533	14,759	13,602	18,258 U
127 0604810A	Fiber Optic Guided Missile - Eng Dev	4		96,500	139,366	98,344 U
128 0604812A	Classified Program	4				23,258 U
129 0604813A	TRACTOR PULL	4			4,920	34,717 U
130 0604814A	Seek and Destroy Armament Missile - Eng Dev	4	101,277	145,627	154,972	104,549 U
131 0604815A	TRACTOR TRAILER	4			4,927	4,982 U
132 0604816A	Airborne Adverse Weather Weapon System - Eng Dev	4			89,046	146,980 U
133 0604817A	TRACTOR BALL	4	17,578	16,012	9,609	2,465 U
134 0604818A	Army Tactical Command and Control Hardware and Software	4	7,412	8,079	11,223	11,549 U
135 0604819A	Line-of-Sight Antitank	4				78,977 U

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Program Line Element No	Item Nomenclature	Act	FY 1988	FY 1989	FY 1990	FY 1991 c	Thousands of Dollars
136	0604820A Forward Area Air Defense Ground Based Sensor	4			17,194	20,273	U
137	0604821A Follow-On LANCE	4			32,819	128,849	U
138	0605710A Joint CB Point of Contact, Test and Assessment	4	5,817	5,935	6,030	6,251	U
139	0203726A Adv Field Artillery Tactical Data System	4	14,797	15,632	37,504	39,262	U
140	0203735A Combat Vehicle Improvement Programs	4	122,598	96,538	91,716	67,736	U
141	0203739A Air Defense C21 Modifications	4	3,701	8,613			U
142	0203740A Maneuver Control System	4	13,971	11,907	7,419	20,241	U
143	0203743A 155mm Self-Propelled Howitzer Improvements	4	33,987	24,444	10,666	3,731	U
144	0203744A Aircraft Modifications/Product Improvement Programs	4	49,405	90,176	110,453	72,846	U
145	0203745A Weapons and Munitions Equipment Upgrade Program	4	24,714	19,824			U
146	0203752A Aircraft Engine Component Improvement Program	4	6,144	5,683	5,828	6,970	U
147	0203801A Missile/Air Defense Product Improvement Program	4	30,298	38,560	50,985	53,060	U
148	0203802A Other Missile Product Improvement Programs	4	41,352	39,603	49,325	45,357	U
149	0203806A TRACTOR RIG	4			13,991	22,699	U
150	0203808A TRACTOR CARD	4		11,000	12,000	10,000	U
151	0203809A Dragon III	4		5,480			U
152	0207316A TACIT RAINBOW	4			57,686	72,728	U
153	0208010A Joint Tactical Communications Program (TRI-TAC)	4	13,105	13,780			U
154	0303145A EUCOM C3 Systems	4	42	631			U
155	1110011A Force Enhancements-Active	4	95,500	118,408	58,536	46,210	U
Tactical Programs			2,249,677	2,702,651	2,913,016	3,107,712	

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Thousands of Dollars							
156	0604716A	Terrain Information - Eng Dev	5	6,383	6,456	12,921	11,591 U
157	0604778A	NAVSTAR Global Positioning System (User Equipment)	5	9,882	8,760	7,747	8,227 U
158	0301359A	Special Army Program	5				U
159	0303142A	SATCOM Ground Environment	5	72,928	26,500	43,089	35,132 U
160	0303401A	Communications Security (COMSEC)	5				U
Intelligence and Communications							
161	0605301A	Kwajalein Missile Range	6	105,491	52,105	89,782	81,158
162	0605502A	Small Business Innovative Research	6	148,994	155,325	157,705	164,651 U
163	0605601A	Army Test Ranges and Facilities	6	186,446	190,556	226,929	235,309 U
164	0605602A	Army Technical Test Instrumentation and Targets	6	62,591	59,814	68,926	91,570 U
165	0605603A	Army User Test Instrumentation and Threat Simulators	6	58,492	43,720	67,405	60,117 U
166	0605604A	Technology and Vulnerability Assessment	6	23,724	24,901		U
167	0605702A	Meteorological Support to RDT&E Activities	6	18,273	18,838	23,490	23,969 U
168	0605706A	Material Systems Analysis	6	24,335	23,711	25,505	25,987 U
169	0605709A	Exploitation of Foreign Items	6	4,340	4,339		U
170	0605712A	Support of Operational Testing	6	49,425	51,184	70,869	75,107 U
171	0605801A	Programwide Activities	6	80,216	82,801	95,434	97,494 U
172	0605802A	International Cooperative Research and Development	6	1,080	1,088	1,750	1,858 U
173	0605803A	Technical Information Activities	6	5,608	5,737	12,608	12,684 U

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174 0605805A	Munitions Standardization, Effectiveness and Safety	6	14,165	12,918	17,689	17,692	U
175 0605810A	RDT&E Support for Nondevelopmental Items	6	8,270	18,242	7,534	7,648	U
176 0605872A	Productivity Investments	6	36,296	49,703	19,176	19,203	U
177 0605894A	Real Property Maintenance Activities - RDT&E	6	156,689	161,428	175,331	178,380	U
178 0605896A	Base Operations - RDT&E	6	174,969	183,428	198,692	202,980	U
179 0605898A	Management Headquarters (Research and Development)	6	11,843	9,925	14,753	15,049	U
180 0708011A	Industrial Preparedness	6	20,904	19,755	34,454	36,085	U
	Defensewide Mission Support		1,127,234	1,117,413	1,275,257	1,324,102	
	Total Research Development Test & Eval Army		4,676,698	5,117,396	5,603,000	5,873,707	

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## Summary

Date: 9 Jan 1989

Thousands of Dollars

	FY 1988	FY 1989	FY 1990	FY 1991
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## Summary Recap of Research Categories

Research	339,247	355,304	390,652	411,917
Exploratory Development	407,419	431,166	411,612	434,021
Advanced Development	2,580,935	2,071,633	2,262,616	2,364,228
Engineering Development	4,342,357	4,518,859	4,807,937	4,112,122
Management and Support	641,748	585,040	645,953	653,060
Research and Development (FYDP Program 6)	8,311,706	7,961,902	8,508,770	7,975,346
Operational Systems Development	1,166,840	1,382,687	1,675,630	1,660,454
Total Research Development Test & Eval Navy	9,478,546	9,344,589	10,184,400	9,635,800

## Summary Recap of Budget Activities

Technology Base	746,666	786,470	802,264	845,938
Advanced Technology Development	234,962	192,936	194,021	182,424
Strategic Programs	1,232,220	790,291	520,669	391,623
Tactical Programs	5,588,890	6,106,797	7,020,686	6,565,862
Intelligence and Communications	903,150	749,165	848,529	858,358
Defensewide Mission Support	772,658	718,930	798,231	791,595
Total Research Development Test & Eval Navy	9,478,546	9,344,589	10,184,400	9,635,800

## Summary Recap of FYDP Programs

Strategic Forces	172,771	161,029	163,880	162,208
General Purpose Forces	413,669	521,178	715,241	655,901
Intelligence and Communications	518,756	628,247	704,741	736,834
Research and Development (FYDP Program 6)	8,311,706	7,961,902	8,508,770	7,975,346
Central Supply and Maintenance	41,888	43,310	40,999	41,168
Special Operations Forces	19,556	28,923	50,769	64,343
Total Research Development Test & Eval Navy	9,478,546	9,344,589	10,184,400	9,635,800

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Line No	Program Element Number	Item Nomenclature	Act	FY 1988	FY 1989	FY 1990	FY 1991 c
Thousands of Dollars							
1	0601103N	University Research Initiatives	1			24,275	24,265 U
2	0601152N	In-House Independent Laboratory Research	1	22,627	23,429	24,426	25,903 U
3	0601153N	Defense Research Sciences	1	316,620	331,875	341,951	361,746 U
4	0602111N	Anti-Air Warfare/Anti-Surface Warfare Technology	1	54,748	55,341	58,176	61,003 U
5	0602121N	Surface Ship Technology	1	14,070	13,275	14,717	15,556 U
6	0602122N	Aircraft Technology	1	21,969	21,503	22,686	23,911 U
7	0602131M	Marine Corps Landing Force Technology	1	16,045	15,623	16,374	17,616 U
8	0602232N	Command, Control, and Communications Technology	1	18,812	13,935	16,508	17,832 U
9	0602233N	Mission Support Technology	1	28,058	31,140	31,781	33,398 U
10	0602234N	Systems Support Technology	1	57,596	60,819	63,593	66,647 U
11	0602314N	ASW Technology	1	86,055	100,592	95,986	101,911 U
12	0602315N	Mine and Special Warfare Technology	1	14,832	15,370	16,556	17,439 U
13	0602323N	Submarine Technology	1	13,443	14,503	15,334	16,169 U
14	0602324N	Nuclear Propulsion	1	40,663	44,423	14,036	14,353 U
15	0602435N	Ocean and Atmospheric Support Technology	1	26,432	28,854	29,458	30,897 U
16	0602936N	Independent Exploratory Development	1	14,696	15,788	16,407	17,289 U
Technology Base				746,666	786,470	802,264	845,938
17	0603202N	Avionics	2	2,053			U
18	0603210N	Aircraft Propulsion	2	5,476	6,111	8,359	9,954 U

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Program Line Element No	Item Nomenclature	Act	Thousands of Dollars			
			FY 1988	FY 1989	FY 1990	FY 1991 c
19 0603217N	Advanced Aircraft Subsystems	2	7,301	12,469	9,286	5,893 U
20 0603268N	Naval Airship	2	20,168			U
21 0603270N	EW Technology	2	12,252	12,082	12,830	12,881 U
22 0603303N	Electromagnetic Radiation Source Elimination Technology	2	5,709	6,006	7,014	9,542 U
23 0603508N	Ship Propulsion System	2	8,571	14,718	14,123	18,924 U
24 0603573N	Electric Drive	2	5,988	13,934	11,998	11,802 U
25 0603701N	Human Factors Engineering	2	2,537	2,436	2,541	2,776 U
26 0603706N	Medical Development	2	18,946	20,955	18,036	19,018 U
27 0603707N	Manpower and Personnel Systems	2	3,019	3,205	4,113	4,133 U
28 0603712N	Generic Logistics R&D Technology Demonstrations	2	28,008	25,589	20,975	13,762 U
29 0603720N	Education and Training	2	5,053	5,332	6,374	6,806 U
30 0603732M	Marine Corps Advanced Manpower/Training Systems	2	2,134	3,092	4,078	3,522 U
31 0603733N	Simulation and Training Devices	2	7,894	6,405	5,687	5,436 U
32 0603739N	Navy Logistic Productivity	2	950	1,454	1,445	1,558 U
33 0603743N	ARIADNE	2	2,062			U
34 0603747N	Advanced Anti-Submarine Warfare Technology	2	18,815	2,420	4,603	5,021 U
35 0603768N	Balanced Technology Initiative	2	29,916			U
36 0603792N	Advanced Technology Transition	2	48,110	56,728	62,559	51,396 U
	Advanced Technology Development		234,962	192,936	194,021	182,424

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37	0603392N Anti-Satellite System (ASAT)	3			94,572	124,281 U	
38	0603451N Tactical Space Operations	3	4,670	5,497	5,698	3,808 U	
39	0603588N SSBN Survivability	3	6,276	9,512	11,918	16,874 U	
40	0603735N WWMCCS Architecture Support	3		4,839	6,881	U	
41	0603741N Satellite Laser Communications	3		24,889	2,001	1,809 U	
42	0604363N TRIDENT II	3	1,037,871	574,752	222,154	70,670 U	
43	0605858N Strategic Technical Support	3	4,106	3,146	6,234	6,542 U	
44	0101221N Fleet Ballistic Missile System	3	23,037	31,075	49,158	63,114 U	
45	0101224N SSBN Security Technology Program	3	39,685	41,682	41,994	42,143 U	
46	0101228N Trident	3	29,226	33,227	40,589	36,819 U	
47	0101401N Extremely Low Frequency (ELF) Communications	3	6,516	3,290	100	100 U	
48	0101402N Navy Strategic Communications	3	73,629	51,066	31,284	19,250 U	
49	0102427N Naval Space Surveillance	3	678	689	755	782 U	
50	0303131N Minimum Essential Emergency Communications Network (MEECN)	3	1,027	1,036	1,305	1,522 U	
51	0303152N World-Wide Military Command and Control Systems, Information System	3	5,499	5,591	6,026	3,909 U	
	Strategic Programs		1,232,220	790,291	520,669	391,623	
52	0603109N Integrated Aircraft Avionics	4	8,756	2,052	3,312	4,810 U	
53	0603207N Air/Ocean Tactical Applications	4	10,712	7,711	11,166	12,314 U	
54	0603208N T-45 Training System	4	94,579	88,776	26,475	14,603 U	

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55	0603216N Aviation Life Support Systems - Adv Dev	4	3,120	8,267	8,777	9,579 U
56	0603220N Advanced Tactical Support (ATS)	4			999	1,504 U
57	0603222N Skipper Enhancements	4	7,283	15,874		U
58	0603228N CV ASW Module	4		957	3,505	3,518 U
59	0603231N Navy Advanced Tactical Fighter	4	2,000	64,536	64,735	64,725 U
60	0603254N Air ASW	4	7,280	8,841	11,035	11,002 U
61	0603256N V-22A	4	485	4,965		U
62	0603257N A-6 Upgrades	4	135,223			U
63	0603260N Airborne Mine Countermeasures	4	6,677	12,055	13,027	16,558 U
64	0603261N Tactical Airborne Reconnaissance	4	8,269	8,215	26,225	34,478 U
65	0603262N Aircraft Survivability and Vulnerability	4	8,986	11,448	9,141	12,662 U
66	0603306N Advanced A/L Air-to-Surface Missile System	4	32,967	22,339		U
67	0603318N Advanced Surface-to-Air Missile	4	65,421	103,726	91,352	40,400 U
68	0603319N NATO AAW Systems	4	5,267	7,301	20,842	23,848 U
69	0603320N Low Cost Anti-Radiation Seeker	4	12,070	4,732	12,226	10,246 U
70	0603321N Advanced Air-to-Air Missile (AAAM)	4	16,112	29,975	74,651	84,920 U
71	0603362N Battle Group AAW Coordination	4	8,469	7,535	9,491	10,856 U
72	0603502N Surface Mine Countermeasures	4	17,054	15,491	14,306	20,595 U
73	0603504N Advanced Submarine ASW Development	4	7,738	12,233	16,322	28,625 U
74	0603506N Surface Ship Torpedo Defense	4	35,423	33,682	51,515	52,984 U

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				Thousands of Dollars			
75	0603512N	Shipboard Aviation Systems	4	6,660	7,869	12,836	15,347 U
76	0603513N	Shipboard System Component Development	4	10,186	10,830	13,066	13,181 U
77	0603514N	Ship Combat Survivability	4	27,180	28,078	34,120	32,950 U
78	0603522N	Submarine Arctic Warfare Support Equipment Program	4	2,008	3,347	2,902	2,813 U
79	0603525N	PILOT FISH	4	74,259	59,583	60,393	54,869 U
80	0603527N	RETRACT LARCH	4				U
81	0603528N	Non-Acoustic Anti-Submarine Warfare (ASW)	4	10,518	15,601	15,994	17,055 U
82	0603529N	Advanced ASW Target	4	11,468	15,002	25,307	12,143 U
83	0603536N	RETRACT JUNIPER	4	28,137	41,535	54,721	40,655 U
84	0603542N	Radiological Control	4	2,824	3,216	3,899	3,959 U
85	0603551N	LINK SAKI	4			8,700	14,000 U
86	0603553N	Surface ASW	4	38,731	71,917	55,855	53,992 U
87	0603561N	Advanced Submarine System Development	4			37,203	56,060 U
88	0603562N	Submarine Tactical Warfare Systems	4	5,766	6,131	7,483	7,186 U
89	0603564N	Ship Development	4	5,668	5,018	10,213	13,163 U
90	0603569N	Attack Submarine Development	4	125,674	13,543		U
91	0603570N	Advanced Nuclear Power Systems	4	80,680	84,392	80,176	86,989 U
92	0603571N	Physical Security	4	8,360			U
93	0603576N	CHALK EAGLE	4	89,451	99,185	113,959	110,394 U
94	0603582N	Combat System Integration	4	9,520	10,244	8,989	8,993 U

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			FY 1988	FY 1989	FY 1990	FY 1991 C
95 0603591N	Joint Advanced Systems	4	217,550	248,921	191,160	113,683 U
96 0603601N	Mine Development	4	18,403	1,493	4,345	4,964 U
97 0603602N	CHALK PINE	4				U
98 0603609N	Conventional Munitions	4	22,795	25,119	54,405	51,893 U
99 0603610N	Advanced Warhead Development	4			4,720	4,959 U
100 0603611M	Marine Corps Assault Vehicles	4	11,112	13,271	16,167	41,979 U
101 0603612M	Marine Corps Mine/Countermeasures Systems - Adv Dev	4			9,592	19,525 U
102 0603634N	Tactical Nuclear Development	4	2,021	10,325	15,026	14,232 U
103 0603635M	Marine Corps Ground Combat/Support System	4	5,520	6,628	6,562	13,936 U
104 0603654N	Joint Service Explosive Ordnance Development	4	11,097	11,542	9,924	10,654 U
105 0603691N	MK 48 ADCAP - Adv Dev	4		27,463	44,902	59,150 U
106 0603702N	Ocean Engineering Systems Development	4	1,417	1,832	2,185	2,212 U
107 0603704N	ASW Oceanography	4	8,477	9,203	9,408	9,457 U
108 0603708N	ASW Signal Processing	4	17,778	15,425	21,083	25,818 U
109 0603709N	Advanced Marine Biological System	4	5,393	6,219	5,715	5,579 U
110 0603711N	Fleet Tactical Development and Evaluation Program	4	4,630	6,027	6,161	6,482 U
111 0603713N	Ocean Engineering Technology Developments	4	12,891	13,954	14,729	15,042 U
112 0603717N	Command and Control Systems	4		37,094	29,376	26,400 U
113 0603719N	Container Off-Loading and Transfer System (COTS)	4	1,495			U
114 0603724N	Navy Energy Program	4	7,556	8,489	7,007	7,748 U

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			FY 1988	FY 1989	FY 1990	FY 1991 C	
115	0603725N Facilities Improvement	4	7,722	6,586			U
116	0603729M Marine Corps Combat Services Support	4	9,608	15,417	2,038	1,288	U
117	0603734N CHALK CORAL	4	4,461	4,504	19,450	30,581	U
118	0603737N LINK HAZEL	4	4,431	6,770	1,096	1,103	U
119	0603740N LINK LAUREL	4	53,656	59,405	116,743	123,851	U
120	0603744N LINK SPRUCE	4	271,374				U
121	0603746N RETRACT MAPLE	4	71,496	121,152	149,954	173,629	U
122	0603748N LINK PLUMERIA	4	6,575	10,980	6,340	12,697	U
123	0603750N CHALK WEED	4	1,324	1,109	9,238	35,850	U
124	0603751N RETRACT ELM	4	38,554	40,855	77,999	103,234	U
125	0603752N CHALK POINSETTIA	4					U
126	0603763N Warfare Systems Architecture and Engineering	4		9,987	11,783	12,429	U
127	0603764N LINK EVERGREEN	4					U
128	0603784N -Fixed Distributed Systems - Adv	4	70,596	103,859			U
129	0603785N Anti-Submarine Warfare Environmental Acoustic Support	4	15,734	16,589	16,816	16,985	U
130	0603787N Special Processes	4	37,493	38,002	35,498	31,258	U
131	0604203N Standard Avionics Development	4	9,355	12,543	15,841	16,827	U
132	0604211N IFF System Development	4	13,985	20,652	26,337	56,488	U
133	0604212N LAMPS	4	20,016	9,872	7,274	21,387	U
134	0604213N Helicopter Development	4	11,880	11,600	18,295	17,067	U

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Line No	Program Element Number	Item Nomenclature	Act	FY 1988	FY 1989	FY 1990	FY 1991 C
			Thousands of Dollars				
135	0604214N	AV-8B Aircraft - Eng Dev	4	36,455	38,760	29,510	30,269 U
136	0604215N	Support Equipment	4	63,101	69,954	84,071	22,555 U
137	0604218N	Air/Ocean Equipment Engineering	4	2,074	2,036	2,467	2,777 U
138	0604219N	Airborne ASW Developments	4			8,105	8,605 U
139	0604221N	P-3 Modernization Program	4	97,682	200,245	357,147	277,353 U
140	0604233N	Advanced Tactical Aircraft	4				U
141	0604260N	C/MH-53E	4	10,933	8,826	8,102	9,644 U
142	0604261N	Acoustic Search Sensors	4	35,155	42,739	49,833	54,565 U
143	0604262N	V-22A	4	462,998	302,887	221,185	178,080 U
144	0604264N	Aviation Life Support Systems - Eng Dev	4	18,288	16,965	24,354	20,513 U
145	0604268N	Aircraft Engine Component Improvement Program	4	33,262	35,675	43,073	47,323 U
146	0604270N	EW Development	4	181,545	188,148	144,172	152,327 U
147	0604301N	MK 92 Fire Control System Upgrade	4	3,279	2,919	5,000	5,192 U
148	0604303N	AEGIS Area Air Defense	4	5,426	8,976	12,221	7,623 U
149	0604307N	AEGIS Combat System Engineering	4	105,351	58,752	54,975	90,499 U
150	0604309N	SEA LANCE	4	105,080	79,327	127,832	139,890 U
151	0604314N	Advanced Medium Range Air-to-Air Missile	4	22,704	13,310	7,746	3,595 U
152	0604354N	Air-to-Air Missile Systems Engineering	4	22,573	21,131	33,351	28,611 U
153	0604355N	Vertical Launch ASROC	4	37,610	29,947		U
154	0604358N	Close-In Weapon System (PHALANX)	4	7,439	5,179	4,431	6,284 U

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FY 1990/1991 R D T & E Program

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Date: 9 Jan 1989

Program Line Element No Number	Item Nomenclature	Act	FY 1988	FY 1989	FY 1990	FY 1991 C
						Thousands of Dollars
						-----S
155 0604361N	NATO SEA SPARROW	4	1,883	4,930	4,895	5,874 U
156 0604366N	Standard Missile Improvements	4	32,441	55,567	66,274	49,074 U
157 0604367N	TOMAHAWK	4	46,327	44,118	18,143	18,836 U
158 0604369N	5"Rolling Air Frame Missile	4	10,594	7,914	5,261	2,911 U
159 0604370N	SSN-688 Class Vertical Launch System	4	17,965	14,009	8,954	12,352 U
160 0604372N	New Threat Upgrade	4	18,122	10,982	7,392	12,158 U
161 0604373N	Airborne Mine Countermeasures - Eng Dev	4	7,168			U
162 0604502N	Submarine Communications	4	3,276	3,956	8,360	12,045 U
163 0604503N	Submarine Sonar Development	4	32,864	35,479	27,179	43,321 U
164 0604504N	Air Control	4	16,497	19,038	20,146	21,636 U
165 0604506N	Chemical Warfare Countermeasures	4	5,626	6,448	7,511	8,254 U
166 0604507N	Navy Standard Signal Processors	4	62,172	50,266	28,215	20,037 U
167 0604508N	Radar Surveillance Equipment	4	7,123	6,171	6,002	7,724 U
168 0604515N	Submarine Support Equipment Program	4	6,339	15,341	31,379	36,506 U
169 0604516N	Ship Survivability	4	7,267	6,031	6,984	6,120 U
170 0604518N	Combat Information Center Conversion	4	9,941	18,434	24,354	28,526 U
171 0604524N	Submarine Combat System	4	317,788	371,329	361,138	389,061 U
172 0604561N	SSN-21 Developments	4	211,500	188,013	191,969	178,209 U
173 0604562N	Submarine Tactical Warfare System	4	42,013	43,375	77,341	73,702 U
174 0604563N	Physical Security - Eng Dev	4	10,624			U

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Program Line Element No	Item Nomenclature	Act	FY 1988	FY 1989	FY 1990	FY 1991 c
Thousands of Dollars						
175 0604567N	Ship Subsystem Development/Land Based Test Site	4	48,888	58,352	52,893	47,493 U
176 0604574N	Standard Embedded Computer Resources	4	20,503	16,879	29,178	33,639 U
177 0604575N	AN/SQS-53C	4	10,913	2,941		U
178 0604578N	LINK BIRCH	4	2,671	1,913		U
179 0604601N	Mine Development	4	6,799	10,184	11,663	12,110 U
180 0604602N	Naval Gunnery Improvements	4	10,396	7,721	15,875	16,521 U
181 0604603N	Unguided Conventional Air-Launched Weapons	4	1,690	2,005	13,010	13,905 U
182 0604608N	Surface Electro-Optic System	4	14,883	5,723	17,030	10,456 U
183 0604609N	Bomb Fuze Improvement	4	7,330	9,916		U
184 0604610N	MK 50 Torpedo	4	140,069	136,393	63,638	11,409 U
185 0604612M	Marine Corps Mine Countermeasures Systems - Eng Dev	4			29,055	34,333 U
186 0604654N	Joint Service Explosive Ordnance Development	4	5,264	5,296	5,706	5,873 U
187 0604656M	Marine Corps Assault Vehicles	4	24,954	19,935	19,500	19,176 U
188 0604657M	Marine Corps Ground Combat/Supporting Arms System - Eng Dev	4			199	199 U
189 0604675N	MK 48 ADCAP - Eng Dev	4	20,195			U
190 0604704N	Anti-Submarine Warfare Oceanographic Equipment	4	1,108	1,226	1,265	1,347 U
191 0604705N	CHALK BANYAN	4	13,000			U
192 0604707N	Over-the-Horizon Targeting	4	27,745	17,269	3,221	4,023 U
193 0604708N	Initial Trainer Acquisition	4	43,999	61,130		U
194 0604710N	Navy Energy Program	4	4,229	4,722	3,311	3,786 U

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**Exhibit R-1**

Appropriation: 1319 N Research Development Test & Eval Navy

Date: 9 Jan 1989

Thousands of Dollars

Line No	Program Element Number	Item Nomenclature	Act	FY 1988	FY 1989	FY 1990	FY 1991 c
195	0604713N	Surface ASW System Improvement	4			72,142	117,882 U
196	0604715N	Surface Warfare Training Devices	4	16,509	18,618	17,687	12,160 U
197	0604717M	Marine Corps Combat Services Support	4	7,675	22,096	2,254	5,067 U
198	0604718M	Marine Corps Intelligence/Electronics Warfare System	4	15,062	1,052	999	1,147 U
199	0604719M	Marine Corps Command/Control/Communications Systems	4	2,377	26,251	26,074	11,641 U
200	0604727N	Joint Standoff Weapon Systems	4			25,213	60,957 U
201	0604761N	Intelligence	4	4,657	4,635	2,235	2,474 U
202	0604763N	LINK CYPRESS	4				U
203	0604771N	Medical Developments	4	3,513	3,003	4,284	4,598 U
204	0604780M	JINTACCS Marine Corps	4	1,135	1,739	2,019	1,840 U
205	0604784N	Fixed Distributed Systems - Eng	4			160,157	204,558 U
206	0605155N	Fleet Tactical Development and Evaluation	4	13,215	15,493	14,851	15,608 U
207	0605803N	Electromagnetic Spectrum Management	4	1,923	2,031	3,438	3,531 U
208	0605853N	Management and Technical Support	4	8,262	6,650	9,184	9,351 U
209	0605867N	C2 Surveillance/Reconnaissance Support	4	7,914	7,745	9,450	10,102 U
210	0204134N	A-6 Squadrons	4	3,331	1,432	23,215	21,077 U
211	0204136N	F/A-18 Squadrons	4	11,829	12,957	50,644	77,880 U
212	0204152N	Early Warning Aircraft Squadrons	4	21,727	22,774	38,932	36,895 U
213	0204154N	Sea-Based Electronic Warfare Squadrons	4			13,019	2,106 U
214	0204161N	Aviation Support CVW	4		61		U

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Program Line Element No	Item Nomenclature	Act	FY 1988	FY 1989	FY 1990	FY 1991 C
			Thousands of Dollars			
215 0204163N	Fleet Telecommunications (Tactical)	4	5,872	8,611	9,276	8,882 U
216 0204228N	Surface Combatant Ordnance and Missiles	4			46,152	33,085 U
217 0204311N	Undersea Surveillance Systems	4	48,424	40,488	48,069	50,927 U
218 0204313N	Ship-Towed Airay Surveillance Systems	4	8,093	4,390	5,546	7,550 U
219 0204413N	Amphibious Tactical Support Units	4				4,011 U
220 0204571N	Special Projects	4	8,386	6,223	9,073	9,005 U
221 0205601N	HARM Improvement	4	4,149	3,882	5,096	U
222 0205604N	Tactical Information System	4		114,567	96,553	79,764 U
223 0205620N	ASW Combat Systems Integration	4	10,573	14,014	16,159	19,018 U
224 0205633N	Aircraft Equipment Reliability/Maintainability Program	4	1,776		1,004	1,412 U
225 0205658N	Laboratory Fleet Support	4	6,016	5,460	6,521	6,553 U
226 0205667N	F-14 Upgrade	4	167,999	152,887	169,851	119,737 U
227 0205670N	Tactical Intelligence Processing	4	2,036	2,121	4,314	4,792 U
228 0205675N	Operational Reactor Development	4	27,749	37,319	53,762	55,788 U
229 0206313M	Marine Corps Telecommunications	4	7,198	8,402	6,138	5,454 U
230 0206623M	Marine Corps Ground Combat/Supporting Arms Systems	4	43,653	38,056	63,540	45,957 U
231 0206624M	Marine Corps Combat Services Support	4	2,444	2,505	2,784	3,486 U
232 0206625M	Marine Corps Intelligence/Electronics Warfare Systems	4	7,926	17,662	26,454	36,373 U
233 0206626M	Marine Corps Command/Control/Communications Systems	4	14,550	18,974	14,651	24,103 U
234 0207316N	TACIT RAINBOW	4	7,511	5,769	3,896	U

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Program Line Element No	Item Nomenclature	Act	FY 1988	FY 1989	FY 1990	FY 1991 C
						Thousands of Dollars
235	0208010M Joint Tactical Communications Program (TRI-TAC)	4	2,566	2,685	592	2,046 U
236	1110011N Force Enhancements-Active	4	19,556	28,923	50,769	64,343 U
Tactical Programs						
237	0603783N Integrated Platform Communications Development	5	5,588,890	6,106,797	7,020,686	6,565,862
238	0604230N Warfare Support System	5	33,523	28,015	33,994	20,105 U
239	0604231N Tactical Command System	5	27,192	25,873	47,475	42,191 U
240	0604232N Communication Support System	5	281,909			U
241	0604514N Navigation Systems	5			5,700	5,216 U
242	0604577N EHF SATCOM	5		28,705	22,268	17,891 U
243	0604777N NAVSTAR GPS	5	49,507	41,811	43,821	42,747 U
244	0605866N Navy Command and Control	5	3,630	2,859	3,147	4,339 U
245	0301326N PRAIRIE SCHOONER	5				U
246	0301327N Technical Reconnaissance and Surveillance	5				U
247	0303109N Satellite Communications	5		19,961	15,876	14,087 U
248	0303401N Communications Security (COMSEC)	5				U
249	0303603N Milstar Satellite Communications System	5	4,545	4,263	5,001	4,517 U
250	0304111N Special Activities	5				U
Intelligence and Communications						
251	0603721N Environmental Protection	6	903,150	749,165	848,529	858,359
			8,578	6,165	10,687	11,145 U

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Program Line Element No Number	Item Nomenclature	Act	FY 1988	FY 1989	FY 1990	FY 1991 C
						Thousands of Dollars
252 0604208N	Range Instrumentation Systems Development (RISD)	6	10,916	6,813	9,105	9,647 U
253 0604255N	Electronic Warfare Simulator Development	6	32,614	18,507	39,276	39,246 U
254 0604258N	Target Systems Development	6	70,191	93,011	92,208	80,221 U
255 0604703N	Personnel, Training, Simulation, and Human Factors	6	932	1,017	1,021	1,047 U
256 0605150N	Cost Research	6			996	996 U
257 0605151M	Studies and Analysis Support - MC	6	1,535	1,904	2,497	3,013 U
258 0605152N	Studies and Analysis Support - Navy	6	4,905	3,409	3,862	4,060 U
259 0605153M	Marine Corps Operations Analysis Group, CNA	6	4,452	5,491	4,796	5,006 U
260 0605154N	Center for Naval Analyses	6	23,191	21,618	28,678	29,165 U
261 0605156M	Marine Corps Operational Test and Evaluation	6	571	1,294	1,359	1,427 U
262 0605502N	Small Business Innovative Research	6	59,525			U
263 0605804N	Technical Information Services	6	2,741	2,577	3,630	3,659 U
264 0605854M	Marine Corps Development Center Support	6	6,350	5,222		U
265 0605857N	International RDT&E	6	1,246	3,134	7,546	8,228 U
266 0605861N	RDT&E Laboratory and Facilities Management Support	6	49,620	54,619	56,553	58,876 U
267 0605862N	RDT&E Instrumentation and Materiel Support	6	41,607	29,688	31,930	17,772 U
268 0605863N	RDT&E Ship and Aircraft Support	6	88,340	85,366	100,251	90,172 U
269 0605864N	Test and Evaluation Support	6	304,980	323,040	346,913	369,703 U
270 0605865N	Operational Test and Evaluation Capability	6	8,720	8,530	8,720	8,986 U
271 0605871M	Marine Corps Tactical Exploitation of National Capabilities	6	1,702	965	1,223	1,824 U

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FY 1990/1991 R D T & E Program

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Program Line Element No Number	Item Nomenclature	Act	FY 1988	FY 1989	FY 1990	FY 1991 c	Thousands of Dollars
272 0605072N	Productivity Investments	0	3,213	259	695	700 U	
273 0305111N	Weather Service	6	948	873	1,022	1,060 U	
274 0305160N	Defense Meteorological Satellite Program (DMSP)	6	3,893	2,118	4,264	4,474 U	
275 0708011N	Industrial Preparedness	6	41,888	43,310	40,999	41,168 U	
	Defensewide Mission Support		772,658	718,930	798,231	791,595	
	Total Research Development Test & Eval Navy		9,478,546	9,344,589	10,184,400	9,635,800	

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Department of the Air Force  
FY 1990/1991 R D T & E Program

Exhibit R-1

Date: 9 Jan 1989

## Summary

Thousands of Dollars

	FY 1988	FY 1989	FY 1990	FY 1991
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## Summary Recap of Research Categories

Research	200,167	196,388	220,094	223,775
Exploratory Development	572,892	573,868	579,707	591,781
Advanced Development	4,257,448	2,331,852	2,503,591	1,743,788
Engineering Development	3,866,624	5,393,655	5,280,073	5,378,859
Management and Support	645,986	554,426	600,643	615,946
Research and Development (FYDP Program 6)	9,543,117	9,050,189	9,184,108	8,554,149
Operational Systems Development	5,514,445	5,628,574	5,588,092	5,230,151
Total Research Development Test & Eval AF	15,057,562	14,678,763	14,772,200	13,784,300

## Summary Recap of Budget Activities

Technology Base	773,059	770,256	799,601	815,556
Advanced Technology Development	789,350	764,711	785,338	900,969
Strategic Programs	5,743,174	5,374,252	4,658,451	3,630,964
Tactical Programs	3,942,780	4,121,674	4,660,224	4,649,529
Intelligence and Communications	2,135,782	2,064,445	2,086,660	2,119,467
Defensewide Mission Support	1,673,417	1,583,425	1,781,726	1,667,815
Total Research Development Test & Eval AF	15,057,562	14,678,763	14,772,200	13,784,300

## Summary Recap of FYDP Programs

Strategic Forces	496,125	473,859	526,928	353,388
General Purpose Forces	917,185	988,129	1,135,926	1,127,562
Intelligence and Communications	3,792,870	3,798,127	3,700,747	3,501,014
Airlift/Sealift	26,968	12,808	14,784	12,845
Guard and Reserve	59,414	82,560	29,945	4,932
Research and Development (FYDP Program 6)	9,543,117	9,050,189	9,184,108	8,554,149
Central Supply and Maintenance	101,602	117,021	97,958	99,585
Administration and Assoc Activities	3,066	3,114	4,148	4,360
Support of Other Nations	117,215	152,956	3,177	3,750
Special Operations Forces			74,579	122,715
Total Research Development Test & Eval AF	15,057,562	14,678,763	14,772,200	13,784,300

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FY 1990/1991 R D T & E Program

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Appropriation: 3600 F Research Development Test &amp; Eval AF

Date: 9 Jan 1989

Program Line Element No	Item Nomenclature	Act	FY 1988	FY 1989	FY 1990	FY 1991 c
						Thousands of Dollars
1	0601101F In-House Laboratory Independent Research	1	14,966	7,000	7,657	8,114 U
2	0601102F Defense Research Sciences	1	185,201	189,368	187,555	190,783 U
3	0601103F University Research Initiatives	1			24,882	24,878 U
4	0602101F Geophysics	1	37,702	34,645	36,025	36,434 U
5	0602102F Materials	1	53,727	58,071	59,313	59,717 U
6	0602201F Aerospace Flight Dynamics	1	70,482	68,885	67,650	69,074 U
7	0602202F Human Systems Technology	1	51,473	51,017	50,181	51,732 U
8	0602203F Aerospace Propulsion	1	60,658	64,173	64,921	65,735 U
9	0602204F Aerospace Avionics	1	62,193	64,109	68,457	72,014 U
10	0602205F Personnel, Training and Simulation	1	30,835	30,853	29,018	28,990 U
11	0602206F Civil Engineering and Environmental Quality	1	6,512	6,816	6,051	5,885 U
12	0602302F Rocket Propulsion	1	41,167	34,324	37,740	38,505 U
13	0602601F Advanced Weapons	1	35,407	34,492	32,880	34,029 U
14	0602602F Conventional Munitions	1	44,509	43,763	44,459	45,266 U
15	0602702F Command Control and Communications	1	78,227	82,720	83,012	84,400 U
	Technology Base		773,059	770,256	799,801	815,556
16	0603106F Logistics Systems Technology	2	8,316	14,862	9,616	13,469 U
17	0603109F INEWS/ICNIA	2	85,129	37,079	36,364	31,788 U
18	0603112F Advanced Materials for Weapon Systems	2			13,116	14,673 U

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Line No	Program Element Number	Item Nomenclature	Act	FY 1988	FY 1989	FY 1990	FY 1991 c
				Thousands of Dollars			
19	0603202F	Aerospace Propulsion Subsystems Integration	2	19,394	20,905	23,152	27,771 U
20	0603203F	Advanced Avionics for Aerospace Vehicles	2	12,151	24,882	26,994	32,582 U
21	0603205F	Aerospace Vehicle Technology	2	21,358	21,242	19,150	21,858 U
22	0603211F	Aerospace Structures	2	24,497	27,665	18,087	18,705 U
23	0603216F	Aerospace Propulsion and Power Technology	2	26,628	32,365	34,923	39,256 U
24	0603226F	DoD Common Programming Language (Ada) Advanced Develop	2	14,591			U
25	0603227F	Personnel, Training and Simulation Technology	2	7,504	8,038	7,829	8,997 U
26	0603231F	Crew Systems and Personnel Protection Technology	2	19,344	20,272	22,606	21,906 U
27	0603245F	Advanced Fighter Technology Integration	2	22,138	23,759	22,775	23,268 U
28	0603250F	Lincoln Laboratory	2	25,999	23,003	25,603	26,988 U
29	0603253F	Advanced Avionics Integration	2	3,085	11,000	14,732	18,240 U
30	0603269F	National Aero Space Plane Technology Program	2	182,780	230,767	299,742	389,524 U
31	0603270F	EW Technology	2		35,470	38,342	42,959 U
32	0603302F	Space and Missile Rocket Propulsion	2	6,183	8,995	11,594	12,285 U
33	0603363F	Hypervelocity Missile	2	6,605	5,577	9,306	7,189 U
34	0603401F	Advanced Spacecraft Technology	2	3,972	7,995	9,998	12,730 U
35	0603410F	Space Systems Environmental Interactions Technology	2	3,353	3,930	3,965	4,148 U
36	0603452F	Very High Speed Integrated Circuits	2	89,539	43,680		U
37	0602601F	Conventional Weapons	2	15,454	25,069	25,521	28,834 U
38	0603605F	Advanced Weapons Technology	2	69,477	88,671	70,324	58,751 U

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Line No	Program Element Number	Item Nomenclature	Act	Thousands of Dollars					S
				FY 1988	FY 1989	FY 1990	FY 1991	C	
39	0603707F	Weather Systems - Adv Dev	2	4,798	5,304	5,551	5,619	U	
40	0603723F	Civil and Environmental Engineering Technology	2	6,062	9,934	9,146	9,971	U	
41	0603726F	C3I Subsystem Integration	2	5,166	8,026	7,878	9,215	U	
42	0603728F	Advanced Computer Technology	2	4,081	7,239	10,027	10,851	U	
43	0603751F	Training Systems Technology	2	273	470			U	
44	0603752F	DoD Software Engineering Institute	2	18,704				U	
45	0603768F	Balanced Technology Initiative	2	51,332				U	
46	0603789F	C3 Advanced Development	2	31,437	18,512	8,997	9,392	U	
		Advanced Technology Development		789,350	764,711	785,338	900,969		
47	0603105F	Olympic	3					U	
48	0603110F	Special Evaluation Program	3					U	
49	0603111F	Meridian	3					U	
50	0603311F	Advanced Strategic Missile Systems	3	129,193	141,768	99,352	99,272	U	
51	0603312F	Advanced Concepts	3					U	
52	0603321F	Bell Weather	3					U	
53	0603364F	Short Range Attack Missile II (SRAM II) - Adv Dev	3	139,955	197,018			U	
54	0603367F	Relocatable Target Capability Program	3	9,859	19,534	6,388	6,972	U	
55	0603428F	Space Surveillance Technology	3			4,968	9,928	U	
56	0603717F	Technical On-site Inspection Program	3	10,573	9,245			U	

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Department of the Air Force  
FY 1990/1991 R D T & E Program

Exhibit R-1

Appropriation: 3600 F Research Development Test &amp; Eval AF

Date: 9 Jan 1989

Line Element No	Program Element Number	Item Nomenclature	Act	FY 1988	FY 1989	FY 1990	FY 1991 c
							Thousands of Dollars
57	0604226F	B-1B	3	359,040	218,284		U
58	0604234F	Common Strategic Rotary Launcher	3	5,546			U
59	0604240F	B-2 Advanced Technology Bomber	3				U
60	0604244F	Short Range Attack Missile II (SRAM II) - Eng Dev	3			217,011	212,759 U
61	0604312F	ICBM Modernization	3	1,058,547	871,447	789,010	551,546 U
62	0604326F	Strategic Conventional Standoff Capability (SCSC)	3	7,874	9,950		U
63	0604361F	Air Launched Cruise Missile (ALCM)	3	3,410	953	1,347	U
64	0604406F	Space Defense System	3	111,627			U
65	0604711F	Systems Survivability (Nuclear Effects)	3	11,467	8,291	7,675	8,743 U
66	0101120F	Advanced Cruise Missile	3				U
67	0101142F	KC-135 Squadrons	3	3,979	3,161	2,203	3,533 U
68	0101213F	Minuteman Squadrons	3	44,545	59,678	100,910	40,632 U
69	0101312F	PACCS and WWABNCP System EC-135 Class V Mods	3	927	1,204	1,186	1,245 U
70	0101313F	War Planning Automated Data Processing (ADP) - SAC	3		15,168	13,811	15,779 U
71	0102310F	NCMC - TW/AA Systems	3	55,867	69,620	118,320	102,569 U
72	0102311F	NCMC - Space Defense Systems	3	26,226	22,540		U
73	0102313F	Ballistic Missile Tactical Warning/Attack Assessment System	3	2,226	2,521		U
74	0102325F	Joint Surveillance System	3	2,119	1,689	1,626	1,674 U
75	0102411F	Surveillance Radar Stations/Sites	3	5,136	1,566	6,376	8,198 U
76	0102412F	Distant Early Warning (DEW) Radar Stations	3	8,333			2,847 U

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Line No	Program Element Number	Item Nomenclature	Act	FY 1988	FY 1989	FY 1990	FY 1991 C
Thousands of Dollars							
77	0102417F	Over-the-Horizon Backscatter Radar	3	28,076	18,479	20,399	18,145 U
78	0102423F	Ballistic Missile Early Warning System (BMEWS)	3	18,904	24,806	19,314	22,962 U
79	0102424F	SPACETRACK	3	9,901	12,295	15,747	15,520 U
80	0102431F	Defense Support Program	3	87,256	96,979	134,004	61,516 U
81	0102432F	Submarine-Launched Ballistic Missile (SLBM) Radar	3	11,178	9,980	4,599	3,891 U
82	0102433F	NUDET Detection System	3	7,272	10,806	6,735	3,131 U
83	0102436F	Command Center Processing and Display System	3	29,050	26,417		U
84	0303131F	Minimum Essential Emergency Communications Network (MEECN)	3	49,680	40,420	15,798	2,670 U
85	0303152F	World-Wide Military Command and Control Systems, Information System	3	5,020	2,307	3,435	3,700 U
86	0303154F	WWMCCS Information System Joint Program	3	19,124	64,439	73,009	68,572 U
87	0303601F	Management Office	3	196,156	302,975	210,193	104,915 U
88	0303603F	Milstar Satellite Communications System (AF Terminals)	3	384,779	272,778		U
89	0305124F	Special Applications Program	3				U
90	0305172F	BERNIE	3				U
91	0305892F	Special Analysis Activities	3				U
92	0401123F	Military Airlift Group (IF)	3	11,481	193		U
Strategic Programs							
93	0603107F	Technical Evaluation System	4	5,743,174	5,374,252	4,658,451	3,630,964 U
94	0603230F	Advanced Tactical Fighter	4	492,255	684,566	1,111,492	206,563 U

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Department of the Air Force  
FY 1990/1991 R D T & E Program

Exhibit R-1

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Line Element No	Program Element Number	Item Nomenclature	Act	Thousands of Dollars					FY 1991 C
				FY 1988	FY 1989	FY 1990			
95	0603260F	Intelligence Advanced Development	4	3,973	4,969	6,699	7,273	U	
96	0603307F	Air Base Operability Advanced Development	4	4,136	5,073	2,794	3,832	U	
97	0603320F	Low Cost Anti-Radiation Seeker	4	13,325	12,391	7,632		U	
98	0603617F	Command, Control, and Communication Applications	4			7,876	8,016	U	
99	0603714F	DoD Physical Security Equipment - Exterior	4	908				U	
100	0603742F	Combat Identification Technology	4		1,940	1,959	1,973	U	
101	0603801F	Special Programs	4					U	
102	0604201F	Aircraft Avionics Equipment Development	4	16,641	19,531	14,557	12,943	U	
103	0604212F	Aircraft Equipment Development	4	2,826	1,134	2,481	2,869	U	
104	0604218F	Engine Model Derivative Program (EMDP)	4	956	953	994	994	U	
105	0604222F	Nuclear Weapons Support	4	4,666	2,167	2,246	2,311	U	
106	0604223F	Alternate Fighter Engine	4	74,688	27,811	63,758	4,977	U	
107	0604231F	C-17 Program	4	1,090,539	932,022	915,227	498,426	U	
108	0604233F	Tanker, Transport, Bomber Training System	4		4,478	3,625	2,374	U	
109	0604236F	Infrared Search and Track System	4	13,814	4,621	2,449		U	
110	0604237F	Variable Stability In-Flight Simulator Test Aircraft	4	6,022	7,895	12,445	3,896	U	
111	0604239F	Advanced Tactical Fighter - Eng Dev	4				1,411,565	U	
112	0604241F	Consolidated EW Programs	4	166,248				U	
113	0604242F	Advanced Tactical Aircraft	4		34,571			U	
114	0604245F	Short Range Attack Missile - Tactical (SRAM-T)	4			58,602	114,518	U	



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FY 1990/1991 R D T & E Program

Exhibit R-1

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Program Line Element No	Item Nomenclature	Act	Thousands of Dollars				S
			FY 1988	FY 1989	FY 1990	FY 1991 C	
115 0604246F	Close Air Support	4			66,000	55,000 U	
116 0604247F	Modular Automatic Test Equipment	4	14,636	11,151	13,926	12,701 U	
117 0604249F	Night/Precision Attack	4	19,291	4,662	3,514	U	
118 0604250F	Integrated EW/CNI Development	4	7,684	121,162	106,194	47,968 U	
119 0604268F	Aircraft Engine Component Improvement Program	4	91,009	92,993	112,494	137,325 U	
120 0604270F	EW Development	4		97,218	150,456	195,613 U	
121 0604314F	Advanced Medium-Range, Air-to-Air Missile (AMRAAM)	4	23,467			U	
122 0604315F	Advanced Short Range Air-to-Air Missile (ASRAAM)	4	996	996	4,987	6,472 U	
123 0604321F	Joint Tactical Fusion Program	4	14,049	7,960		U	
124 0604327F	Hardened Target Munitions	4	1,474	6,248	3,408	U	
125 0604362F	Ground-Launched Cruise Missile (GLCM)	4	296			U	
126 0604601F	Chemical/Biological Defense Equipment	4	14,290	18,638	9,145	9,449 U	
127 0604602F	Armament/Ordnance Development	4	13,844	18,992	23,236	25,029 U	
128 0604604F	Submunitions	4	4,583	7,289	7,349	7,406 U	
129 0604607F	Wide-Area, Anti-Armor Munitions	4	21,994	26,519	27,625	U	
130 0604617F	Air Base Operability	4	11,758	13,772	17,154	17,014 U	
131 0604703F	Aeromedical Systems Development	4	6,005	6,067	6,038	7,667 U	
132 0604704F	Common Support Equipment Development	4	1,617	1,620	6,967	8,485 U	
133 0604706F	Life Support Systems	4	12,501	16,767	13,020	13,315 U	
134 0604708F	Other Operational Equipment	4	7,478	7,258	2,230	2,135 U	

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Line No	Program Element Number	Item Nomenclature	Act	FY 1988	FY 1989	FY 1990	FY 1991 C	Thousands of Dollars
135	0604710F	Reconnaissance Equipment	4	194				U
136	0604715F	DoD Physical Security Equipment - Exterior	4	9,265				U
137	0604725F	Combat Identification Systems	4	30,961	83,359	111,389	104,408	U
138	0604727F	Joint Standoff Weapon Systems	4			24,711	34,611	U
139	0604733F	Surface Defense Suppression	4	9,745	39,213	15,422	7,149	U
140	0604738F	Protective Systems	4	34,557				U
141	0604740F	Computer Resources Management Technology	4	10,415	13,020	11,736	12,295	U
142	0604750F	Intelligence Equipment	4	5,846	4,852	3,522	3,808	U
143	0604754F	Joint Tactical Information Distribution System (JTIDS)	4	21,814	49,315	44,351	43,683	U
144	0604756F	Side Looking Airborne Radar	4	1,800	3,632	8,155	4,026	U
145	0604770F	Joint Surveillance/Target Attack Radar System (JSTARS)	4	337,311	235,988	153,483	58,864	U
146	0604779F	Joint Interoperability of Tactical Command & Control Systems (JINTACCS)	4	5,563	5,850	6,271	6,456	U
147	0101133F	SR-71 Squadrons	4					U
148	0201131F	US Central Command - Communications	4	3,999				U
149	0207129F	F-111 Squadrons	4	16,822	21,300	22,369	9,028	U
150	0207130F	F-15A/B/C/D Squadrons	4	99,199	87,610	2,749	2,842	U
151	0207133F	F-16 Squadrons	4	25,067	26,229	33,458	176,961	U
152	0207134F	F-15E Squadrons	4			121,894	98,950	U
153	0207136F	F-4G WILD WEASEL Squadrons	4	7,621	4,487	3,149	12,085	U
154	0207137F	CONSTANT HELP	4					U

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Line No	Program Element Number	Item Nomenclature	Act	FY 1988	FY 1989	FY 1990	FY 1991 c	
								Thousands of Dollars
								\$
155	0207141F	F-117A Squadrons	4			69,409	68,854	U
156	0207162F	Tactical AGM Missiles	4	2,044	3,881	2,485	497	U
157	0207163F	Advanced Medium Range Air-to-Air Missile (AMRAAM) (Procurement)	4			14,929	24,878	U
158	0207168F	F-111 Self Protection Systems	4	73		10,560	11,609	U
159	0207169F	SEEK CLOCK	4					U
160	0207215F	TR-1 Squadron	4	70,517	100,775	110,710	53,311	U
161	0207217F	Follow-On Tactical Reconnaissance System	4	44,789	56,067	104,048	89,524	U
162	0207247F	AF TENCAP	4	312	322	335	345	U
163	0207316F	TACIT RAINBOW	4	81,076	39,124	20,997	9,754	U
164	0207319F	Standoff Land Attack Missile	4			5,062	10,076	U
165	0207411F	Overseas Air Weapon Control System	4	8,729	5,707	3,524	4,110	U
166	0207412F	Tactical Air Control Systems	4	15,733	13,290	22,322	28,648	U
167	0207417F	Airborne Warning and Control System (AWACS)	4	96,527	116,124	139,632	126,231	U
168	0207423F	Advanced Communications Systems	4	29,490	10,378	11,228	6,950	U
169	0207424F	Copper Coast	4					U
170	0207431F	Tactical Air Intelligence System Activities	4	1,930		462	472	U
171	0207433F	Tactical Improvement Program	4					U
172	0207435F	Tactical Reconnaissance Imagery and Exploitation	4	1,123	1,525			U
173	0207579F	Advanced Systems Improvements	4					U
174	0207585F	SEEK SPINNER	4		19,900			U

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FY 1990/1991 R D T & E Program

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Line No	Program Element Number	Item Nomenclature	Act	FY 1988	FY 1989	FY 1990	FY 1991	U
								Thousands of Dollars
								-----S-----
175	0207590F	Seek Eagle	4			16,797	17,607	U
176	0207591F	OMEGA	4					U
177	0208006F	Mission Planning Systems	4			2,485	6,950	U
178	0208010F	Joint Tactical Communications Program (TRI-TAC)	4	6,430	4,234	3,536	4,713	U
179	0208021F	Electronic Combat Support	4			2,490	2,687	U
180	0208042F	HAVE FLAG	4					U
181	0303605F	Satellite Communications Terminals	4	13,596	17,738	5,915	5,910	U
182	0305142F	CENTENNIAL	4					U
183	0305887F	Electronic Combat Intelligence Support	4			1,744	1,793	U
184	0401129F	THEME CASTLE	4					U
185	0401316F	Senior Citizen	4					U
186	0401840F	MAC Command and Control System	4	6,486	8,907	10,989	11,446	U
187	0502810F	A-7 Squadrons (ANG)	4	59,414	82,560	29,945	4,932	U
188	1110011F	Force Enhancements-Active	4	117,215	152,956	74,579	122,715	U
Tactical Programs				3,942,780	4,121,674	4,660,224	4,649,529	
189	0301305F	Intelligence Production Activities	5					U
190	0301310F	Foreign Technology Division	5					U
191	0301313F	Defense Dissemination Program	5					U
192	0301314F	Infrared/Electro-Optical/Dir. Energy Weapons Processing and Exploitation	5					U

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Program Line Element No	Item Nomenclature	Act	FY 1988	FY 1989	FY 1990	FY 1991 C	Thousands of Dollars
193	0301315F Missile and Space Technical Collection	5					U
194	0301317F SENIOR YEAR Operations	5					U
195	0301324F FOREST GREEN	5					U
196	0301357F NUDET Detection System	5					U
197	0303110F Defense Satellite Communications System	5	43,325	33,733	28,105	15,579	U
198	0303126F Long-Haul Communications (DCS)	5	5,064	4,728	3,235	3,481	U
199	0303128F Inter-Service/Agency Automated Message Processing Exchange	5	472				U
200	0303144F Electromagnetic Compatibility Analysis Center (ECAC)	5	8,083	8,395	8,746	9,101	U
201	0303401F Communications Security (COMSEC)	5					U
202	0304111F Special Activities	5	1,587,813	1,476,221			U
203	0305114F Traffic Control, Approach, and Landing System (TRACALS)	5	25,791	29,050	23,409	20,573	U
204	0305159F Defense Reconnaissance Support Activities	5					U
205	0305164F NAVSTAR Global Positioning System (User Equipment)	5	38,239	47,005	35,555	32,916	U
206	0305165F NAVSTAR Global Positioning System (Space and Control Segments)	5	26,204	47,538	33,310	30,689	U
	Intelligence and Communications		2,135,782	2,064,445	2,086,660	2,119,467	
207	0603402F Space Test Program	6	48,399	44,304	74,589	77,005	U
208	0603438F Satellite Systems Survivability	6	3,170	5,003	10,361	10,554	U
209	0604211F Advanced Aerial Target Development	6	7,905	3,693	6,955	7,179	U
210	0604227F Flight Simulator Development	6	50,501	65,798	65,188	45,764	U

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Program Line Element No	Item Nomenclature	Act	FY 1988	FY 1989	FY 1990	FY 1991 C
						Thousands of Dollars
211 0604243F	Manpower, Personnel and Training Development	6			497	695 U
212 0604408F	Advanced Launch System	6			99,352	99,272 U
213 0604609F	RAM Maturation/Technology Insertion	6	13,984	18,500	22,531	23,014 U
214 0604707F	Weather Systems - Eng Dev	6	12,244	8,658	4,821	5,358 U
215 0604735F	Range Improvement	6	54,654	19,893	118,069	102,195 U
216 0604747F	Electromagnetic Radiation Test Facilities	6	5,869	5,207	4,447	4,728 U
217 0604755F	Improved Capability for Development Test & Evaluation	6	53,113	49,565	52,599	56,407 U
218 0605101F	Project Air Force	6	22,020	21,881	23,320	24,658 U
219 0605306F	Ranch Hand II Epidemiology Study	6	5,754	1,740	1,419	1,476 U
220 0605502F	Small Business Innovative Research	6	79,286			U
221 0605708F	Navigation/Radar/Sled Track Test Support	6	24,122	20,394	28,568	26,433 U
222 0605807F	Test and Evaluation Support	6	299,105	297,106	304,352	321,319 U
223 0605808F	Advanced Systems Engineering/Planning	6	16,957	13,204	14,036	14,914 U
224 0605809F	DVCOMS	6	7,471	9,146	4,968	3,177 U
225 0605863F	RD&E Aircraft Support	6	51,999	52,364	60,448	62,153 U
226 0605994F	Real Property Maintenance - RD&E	6	78,464	78,710	97,752	96,452 U
227 0605996F	Base Operations - RD&E	6	60,808	59,881	67,780	65,364 U
228 0305110F	Satellite Control Facility	6	91,884	88,255	68,579	117,717 U
229 0305119F	Space Boosters	6	451,697	473,225	405,948	272,650 U
230 0305130F	Consolidated Space Operations Center	6	38,836	34,913	24,533	24,762 U

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Line Element No	Program Element Number	Item Nomenclature	Act	FY 1988	FY 1989	FY 1990	FY 1991 c
				Thousands of Dollars			
231	0305160F	Defense Meteorological Satellite Program (DMSP)	6	41,770	52,220	52,641	49,647 U
232	0305171F	Space Shuttle Operations	6	48,737	39,630	64,692	47,227 U
233	0701112F	Inventory Control Point Operations	6	4,326	4,455	4,621	4,752 U
234	0702207F	Depot Maintenance (Non-IF)	6		969	2,428	2,668 U
235	0708011F	Industrial Preparedness	6	82,770	96,430	70,751	71,513 U
236	0708026F	Productivity, Reliability, Availability, Maintain. Prog Ofc (PRAMPO)	6	14,506	15,167	20,158	20,652 U
237	0901218F	Civilian Compensation Program	6			4,148	4,360 U
238	1001004F	International Activities	6	3,066	3,114	3,177	3,750 U
Defensewide Mission Support				1,673,417	1,583,425	1,781,726	1,667,815
Total Research Development Test & Eval AF				15,057,562	14,678,763	14,772,200	13,784,300

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Defense Agencies  
FY 1990/1991 R D T & E Program

Exhibit R-1

## Summary

Date: 9 Jan 1989

Thousands of Dollars

	FY 1988	FY 1989	FY 1990	FY 1991
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## Summary Recap of Research Categories

<b>Research</b>				
Exploratory Development	191,958	231,146	112,323	113,550
Advanced Development	878,050	956,386	790,627	836,825
Engineering Development	4,300,265	4,864,536	6,561,470	7,521,447
Management and Support	120,733	95,878	392,993	604,243
	166,664	218,048	165,016	171,827
<b>Research and Development (FYDP Program 6)</b>				
Operational Systems Development	5,657,670	6,363,994	8,022,629	9,247,892
	1,904,155	1,818,616	1,972,871	2,104,608
<b>Total Research Development Test &amp; Eval Def Ag</b>	<b>7,561,825</b>	<b>8,180,610</b>	<b>9,995,500</b>	<b>11,352,500</b>

## Summary Recap of Budget Activities

<b>Technology Base</b>				
Advanced Technology Development	1,070,008	1,187,532	903,150	950,375
Strategic Programs	3,976,289	4,497,241	6,397,286	7,488,778
Tactical Programs	132,676	246,266	374,950	416,968
Intelligence and Communications	216,930	237,385	348,570	402,506
Defensewide Mission Support	1,740,804	1,633,446	1,672,117	1,777,719
	425,118	378,740	299,427	316,154
<b>Total Research Development Test &amp; Eval Def Ag</b>	<b>7,561,825</b>	<b>8,180,610</b>	<b>9,995,500</b>	<b>11,352,500</b>

## Summary Recap of FYDP Programs

<b>General Purpose Forces</b>				
Intelligence and Communications	67,741	68,141	59,001	60,987
Research and Development (FYDP Program 6)	1,802,645	1,704,581	1,835,676	1,947,477
Central Supply and Maintenance	5,657,670	6,363,994	8,022,629	9,247,892
Support of Other Nations	10,295	19,566	50,441	67,196
Special Operations Forces	484	434	2,348	2,497
	22,990	23,894	25,405	26,451
<b>Total Research Development Test &amp; Eval Def Ag</b>	<b>7,561,825</b>	<b>8,180,610</b>	<b>9,995,500</b>	<b>11,352,500</b>

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Defense Agencies  
FY 1990/1991 R D T & E Program

Exhibit R-1

## Summary

Date: 9 Jan 1989

Thousands of Dollars

	FY 1988	FY 1989	FY 1990	FY 1991
Summary Recap of Defense Agencies				
Defense Mapping Agency	305,233	300,817	265,601	233,973
Strategic Defense Initiative Orgzn	3,553,000	3,627,424	5,590,504	6,671,093
Office of Secretary/Defense	868,750	1,079,648	1,033,041	1,127,014
Defense Advanced Research Projects Agcy	872,387	1,286,592	1,120,821	1,164,035
National Security Agency				
Defense Nuclear Agency	318,388	329,532	354,118	370,369
Defense Support Project Office	227,647	135,355	122,847	237,821
Defense Communications Agency	175,397	182,443	182,410	189,751
Defense Intelligence Agency				
Defense Logistics Agency	62,020	61,260	63,405	74,436
Uniformed Services University (USUHS)	2,442	2,070	2,223	2,350
Total Research Development Test & Eval Def Ag	7,561,825	8,180,610	9,995,500	11,352,500

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## UNCLASSIFIED

Defense Agencies  
FY 1990/1991 R D T & E Program

Exhibit R-1

Appropriation: 0400 D Research Development Test &amp; Eval Def Ag

Date: 9 Jan 1989

Program Line Element No	Item Nomenclature	Act	FY 1988	FY 1989	FY 1990	FY 1991 C
						Thousands of Dollars
1	0601101E Defense Research Sciences	1	79,908	88,076	85,100	86,200 U
2	0601101W In-House Laboratory Independent Research	1	2,442	2,070	2,223	2,350 U
3	0601103D University Research Initiatives	1	85,000	141,000		U
4	0601103E University Research Initiatives	1			25,000	25,000 U
5	0601104D Defense University Research Instrumentation Program	1	24,608			U
6	0602101E Technical Studies	1	1,700	1,800	1,900	2,100 U
7	0602108D Center for Advancement of Scientists, Engineers, and Technologists	1		3,000		U
8	0602301E Strategic Technology	1	311,150	345,534	214,709	220,300 U
9	0602702E Tactical Technology	1	114,399	161,357	136,600	142,156 U
10	0602707E Particle Beam Technology	1	14,000	14,000	14,000	14,500 U
11	0602708E Integrated Command and Control Technology	1	32,293	32,188	34,000	36,000 U
12	0602712E Materials and Electronics Technology	1	61,490	33,040	31,000	42,800 U
13	0602714E Nuclear Monitoring	1	24,330	35,935	24,500	25,600 U
14	0602715H Defense Nuclear Agency	1	318,388	329,532	334,118	351,369 U
15	0602716B Mapping, Charting and Geodesy	1	300			U
Technology Base						
			1,070,008	1,187,532	903,150	950,375
16	0603220C SDI-Surveillance, Acquisition, Tracking and Kill Assessment	2	934,508	1,100,735	1,281,023	1,436,000 U
17	0603221C SDI-Directed Energy Weapons	2	934,266	819,759	1,116,932	1,322,877 U
18	0603222C SDI-Kinetic Energy Weapons	2	773,167	773,111	1,346,514	1,534,557 U

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Defense Agencies  
FY 1990/1991 R D T & E Program

Exhibit R-1

Appropriation: 0400 D Research Development Test &amp; Eval Def Ag

Date: 9 Jan 1989

Line Element No	Program Element Number	Item Nomenclature	Act	FY 1988	FY 1989	FY 1990	FY 1991 c
							Thousands of Dollars
19	0603223C	SDI-Systems and Battle Management	2	461,459	506,476	780,954	975,627 U
20	0603224C	SDI-Survivability, Lethality, and Key Support Technology	2	429,574	406,343	776,787	947,576 U
21	0603225D	Joint DoD-DoE Munitions Technology Development	2	15,768	16,738	8,179	8,598 U
22	0603226E	Experimental Evaluation of Major Innovative Technologies	2	195,938	237,496	167,300	158,800 U
23	0603227E	Relocatable Target Detection Technology Program	2	7,750	12,400	22,500	25,000 U
24	0603569E	Advanced Submarine Technology	2		95,000		U
25	0603706D	Microwave/Millimeter Wave Monolithic Integrated Circuits (MIMIC)	2	49,465			U
26	0603706E	Microwave/Millimeter Wave Monolithic Integrated Circuits (MIMIC)	2		66,591	81,580	86,190 U
27	0603707E	Prototyping of Advanced Technologies and Innovative Concepts	2			94,700	100,000 U
28	0603736D	Computer Aided Logistics Support	2	9,845	11,403	13,274	13,902 U
29	0603737D	Balanced Technology Initiative	2	100,000	238,000	237,216	237,243 U
30	0603738D	Cooperative DoD/VA Medical Research	2	15,000	17,000		U
31	0603739E	Semiconductor Manufacturing Technology	2		100,000	100,000	100,000 U
32	0603740D	Rankine Cycle Energy Recovery (RACER) System	2	5,000			U
33	0603756D	Consolidated DoD Software Initiative	2	19,018	24,816	15,125	12,773 U
34	0603756E	Consolidated DoD Software Initiative	2		36,180	32,426	33,600 U
35	0604220C	Phase I Strategic Defense System	2			262,000	427,000 U
36	0305108K	Command and Control Research	2	2,541	2,362	2,471	2,584 U
37	0702807E	Infrared Focal Plane Array	2		8,937	33,000	40,000 U
38	1110011D	Force Enhancements-Active	2	10,827	10,245	16,012	16,577 U

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Defense Agencies  
 FY 1990/1991 R D T & E Program  
 Appropriation: 0400 D Research Development Test & Eval Def Ag

Exhibit R-1

Date: 9 Jan 1989

Program Line Element No	Item Nomenclature	Act	FY 1988	FY 1989	FY 1990	FY 1991 C
						Thousands of Dollars
39	1140011D Advanced Special Operations Research, Development and Acquisition	2	12,163	13,649	9,393	9,674 U
	Advanced Technology Development		3,976,289	4,497,241	6,397,286	7,488,778
40	0603711H Verification Technology Demonstration	3			20,000	19,000 U
41	0603734K Island Sun	3	46,657	56,797	59,406	62,133 U
42	0603741D Air Defense Initiative	3	49,224	156,131	257,151	296,055 U
43	0302016K National Military Command System-Wide Support	3	11,029	5,669	13,496	14,403 U
44	0302019K WWCCS Systems Engineer	3	16,586	17,922	16,884	17,521 U
45	0303131K Minimum Essential Emergency Communications Network (MEECN)	3	9,180	9,747	8,013	7,856 U
	Strategic Programs		132,676	246,266	374,950	416,968
46	0603228D Physical Security Equipment	4		34,461	35,881	36,882 U
47	0604702D Joint Standoff Weapons Program	4	25,000	33,378	34,885	79,746 U
48	0604722S Joint Service Education and Training Systems Development	4			8,978	9,689 U
49	0604771D Joint Tactical Information Distribution System (JTIDS)	4	78,603	61,120	87,130	87,808 U
50	0201135K CINC C2 Initiatives	4	1,756	1,876	1,962	2,051 U
51	0208045K C3 Interoperability (Joint Tactical C3 Agency)	4	61,715	60,264	50,549	52,316 U
52	0208298K Management Headquarters (Joint Tactical C3 Agency)	4	4,270	6,001	6,490	6,620 U
53	0305141D Joint Remotely Piloted Vehicles Program	4	45,586	40,285	122,695	127,394 U
	Tactical Programs		216,930	237,385	348,570	402,506

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Defense Agencies  
FY 1990/1991 R D T & E Program

Exhibit R-1

Appropriation: 0400 D Research Development Test &amp; Eval Def Ag

Date: 9 Jan 1989

Line Element No	Program Element Number	Item Nomenclature	Act	FY 1988	FY 1989	FY 1990	FY 1991 c
				Thousands of Dollars			
54	0603701B	Mapping, Charting, Geodesy Investigations, and Prototype Development	5	5,951	3,470		U
55	0604701B	Mapping, Charting, and Geodesy Engineering Development and Test	5	7,130	1,380		U
56	0604703D	LANDSAT	5	10,000			U
57	0301011G	Cryptologic Activities	5				U
58	0301301L	General Defense Intelligence Program	5				U
59	0303126K	Long-Haul Communications (DCS)	5	17,999	17,897	19,046	19,987 U
60	0303127K	Support of the National Communications System	5	3,664	3,908	4,093	4,280 U
61	0303401G	Communications Security (COMSEC)	5				U
62	0305139B	DMA Mapping, Charting, and Geodesy (MC&G) Production System Improve	5	288,999	293,317	261,075	226,598 U
63	0305154I	Airborne Reconnaissance Support Program	5	86,600	98,561	86,600	198,700 U
64	0305159B	Defense Reconnaissance Support Activities	5	2,853	2,650	4,526	7,375 U
65	0305159G	Defense Reconnaissance Support Activities	5				U
66	0305159I	Defense Reconnaissance Support Activities	5	141,047	36,794	36,247	39,121 U
67	0305167G	Computer Security	5				U
68	0305884L	Intelligence Planning & Review Activities	5				U
69	0305885G	Tactical Cryptologic Activities	5				U
Intelligence and Communications				1,740,804	1,633,446	1,672,117	1,777,719
70	0603708D	Integrated Diagnostics	6			14,951	14,952 U
71	0603739D	Semiconductor Manufacturing Technology	6	100,000			U

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Defense Agencies  
FY 1990/1991 R D T & E Program

Exhibit R-1

Date: 9 Jan 1989

Appropriation: 0400 D Research Development Test &amp; Eval Def Ag

Line Element No	Program Element Number	Item Nomenclature	Act	FY 1988	FY 1989	FY 1990	FY 1991 c
				Thousands of Dollars			
							\$
72	06037900	NATO Research and Development	8	147,675	151,629	99,671	99,682 U
73	06051040	Technical Support to USD(A)	6	16,619	18,796	26,071	27,269 U
74	06051060	General Support for PA&E	6	2,179	2,180	2,407	2,627 U
75	06051070	General Support for Policy	6	5,470	5,471	5,825	5,946 U
76	06051080	General Support for Net Assessment	6	3,525	3,753	3,907	3,969 U
77	06051090	General Support for FM&P	6	1,531	1,531	1,575	1,702 U
78	06051100	Technical Support to USD(A)--Critical Technology	6	3,175	3,174	4,206	4,421 U
79	06051120	Rand National Defense Research Institute	6	16,259	17,261	18,683	19,775 U
80	0605114E	BLACK LIGHT	6	3,600	3,600	6,000	6,000 U
81	0605116D	General Support to C3I	6	2,354	2,354	2,222	2,361 U
82	0605117D	Foreign Material Acquisition and Exploitation	6	9,845	10,203	10,985	11,546 U
83	0605119D	General Support for P&L	6	2,558	2,558	3,249	3,415 U
84	0605134D	Threat Simulators Development	6		59,078		U
85	0605502E	Small Business Innovative Research	6	8,795			U
86	0605711S	Critical Technology Analysis	6	29,019	23,019	4,488	4,227 U
87	0605801S	Defense Technical Information Center	6	19,792	22,412	25,321	25,985 U
88	0605802S	Information Analysis Centers	6	4,883	5,200	5,377	5,539 U
89	0605803S	R&D in Support of DoD Enlistment, Testing and Evaluation	6			1,800	1,800 U
90	0605872E	Productivity Investments	6	2,000			U
91	0605898C	Management Headquarters (Strategic Defense Initiative)	6	20,026	21,000	26,394	27,456 U

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Defense Agencies  
FY 1980/1991 R D T & E Program

Exhibit R-1

Appropriation: 0400 D Research Development Test &amp; Eval Def Ag

Date: 9 Jan 1989

Program Line Element No	Item Nomenclature	Act	FY 1988	FY 1989	FY 1990	FY 1991 c	Thousands of Dollars
92	0605998E Management Headquarters (Research and Development)	6	15,034	14,458	16,506	17,789	U
93	0702807D Infrared Focal Plane Array	6	1,969				U
94	0708011S Industrial Preparedness	6	8,326	10,629	17,441	27,196	U
95	1001015D Technology Security Functions	6	484	434	2,348	2,497	U
Defensewide Mission Support			425,118	378,740	299,427	316,154	
Total Research Development Test & Eval Def Ag			7,561,825	8,180,610	9,995,500	11,352,500	

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Defense Agencies  
FY 1990/1991 R D T & E Program

Exhibit R-1

Summary

Date: 9 Jan 1989

Thousands of Dollars

	FY 1988	FY 1989	FY 1990	FY 1991
Summary Recap of Research Categories				
Engineering Development	31,600	31,500	177,273	295,895
Management and Support	150,516	117,820	139,127	148,805
Research and Development (FYDP Program 6)	182,116	149,320	316,400	444,700
Total Director of Test & Eval Defense	182,116	149,320	316,400	444,700
Summary Recap of Budget Activities				
Defensewide Mission Support	182,116	149,320	316,400	444,700
Total Director of Test & Eval Defense	182,116	149,320	316,400	444,700
Summary Recap of FYDP Programs				
Research and Development (FYDP Program 6)	182,116	149,320	316,400	444,700
Total Director of Test & Eval Defense	182,116	149,320	316,400	444,700

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Defense Agencies  
FY 1990/1991 R D T & E Program

Exhibit R-1

Appropriation: 0450 D Director of Test &amp; Eval Defense

Date: 9 Jan 1989

Program Line Element No Number	Item Nomenclature	Act	FY 1988	FY 1989	FY 1990	FY 1991 C
		Thousands of Dollars				
1	0604940D Test Instrumentation Development	6	30,100	30,000	175,273	293,895 U
2	0604941D Space System Test Capabilities	6	1,500	1,500	2,000	2,000 U
3	0605111D Foreign Weapons Evaluation	6	29,811	15,364	16,100	16,319 U
4	0605130D NATO Cooperative Development Testing	6	43,000	31,271	27,536	27,754 U
5	0605131D Live Fire Testing	6	6,700	8,999	11,100	11,666 U
6	0605132D Joint Technical Coordinating Group for Aircraft Survivability	6	7,086	7,086	8,062	7,888 U
7	0605804D Development Test and Evaluation	6	63,919	55,100	62,069	69,782 U
8	0605805D Thrust Watcher	6			14,260	15,396 U
Defensewide Mission Support			182,116	149,320	316,400	444,700
Total Director of Test & Eval Defense			182,116	149,320	316,400	444,700

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Defense Agencies  
FY 1990/1991 R D T & E Program

Exhibit R-1

## Summary

Date: 9 Jan 1989

Thousands of Dollars

	FY 1988	FY 1989	FY 1990	FY 1991
Summary Recap of Research Categories				
Engineering Development	59,000	58,724	127,280	134,087
Management and Support	11,221	12,234	25,720	26,733
Research and Development (FYDP Program 6)	70,221	70,958	153,000	160,800
Total Director of Operational Test & Evaluation	70,221	70,958	153,000	160,800
Summary Recap of Budget Activities				
Defensewide Mission Support	70,221	70,958	153,000	160,800
Total Director of Operational Test & Evaluation	70,221	70,958	153,000	160,800
Summary Recap of FYDP Programs				
Research and Development (FYDP Program 6)	70,221	70,958	153,000	160,800
Total Director of Operational Test & Evaluation	70,221	70,958	153,000	160,800

## Summary Recap of Research Categories

Engineering Development  
Management and Support

Research and Development (FYDP Program 6)

Total Director of Operational Test &amp; Evaluation

## Summary Recap of Budget Activities

Defensewide Mission Support

Total Director of Operational Test &amp; Evaluation

## Summary Recap of FYDP Programs

Research and Development (FYDP Program 6)

Total Director of Operational Test &amp; Evaluation

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Defense Agencies  
FY 1990/1991 R D T & E Program

Exhibit R-1

Appropriation: 0460 D Director of Operational Test &amp; Evaluation

Date: 9 Jan 1989

Program Line Element No	Item Nomenclature	Act	FY 1988	FY 1989	FY 1990	FY 1991 C	Thousands of Dollars
1	0604340D OT&E Capability Improvement	6	59,000	58,724	127,280	134,067	U
2	0605118D Operational Test and Evaluation	6	11,221	12,234	25,720	26,733	U
	Defensewide Mission Support		70,221	70,958	153,000	160,800	
	Total Director of Operational Test & Evaluation		70,221	70,958	153,000	160,800	

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## UNCLASSIFIED

Defense Mapping Agency  
FY 1990/1991 R D T & E Program

Exhibit R-1

Appropriation: 0400 D Research Development Test &amp; Eval Def Ag

Date: 9 Jan 1989

Line Element No	Program Element Number	Item Nomenclature	Act	FY 1988	FY 1989	FY 1990	FY 1991 c	Thousands of Dollars	
15	06027168	Mapping, Charting and Geodesy	1	300					U
Technology Base									
54	06037018	Mapping, Charting, Geodesy Investigations, and Prototype Development	5	5,951	3,470				U
55	06047018	Mapping, Charting, and Geodesy Engineering Development and Test	5	7,130	1,380				U
62	03051398	DMA Mapping, Charting, and Geodesy (MC&G)	5	288,999	293,317	261,075	226,598		U
64	03051598	Production System Improve Defense Reconnaissance Support Activities	5	2,853	2,650	4,526	7,375		U
Intelligence and Communications									
				304,933	300,817	265,601	233,973		
Total Defense Mapping Agency				305,233	300,817	265,601	233,973		

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Strategic Defense Initiative Orgzn  
FY 1990/1991 R D T & E Program

Exhibit R-1

Appropriation: 0400 D Research Development Test &amp; Eval Def Ag

Date: 9 Jan 1989

Line Element No	Program Element Number	Item Nomenclature	Act	FY 1988	FY 1989	FY 1990	FY 1991 c
Thousands of Dollars							
16	06032220C	SDI-Surveillance, Acquisition, Tracking and Kill Assessment	2	934,508	1,100,735	1,281,023	1,436,000 U
17	06032221C	SDI-Directed Energy Weapons	2	934,266	819,759	1,116,932	1,322,877 U
18	06032222C	SDI-Kinetic Energy Weapons	2	773,167	773,111	1,346,514	1,534,557 U
19	06032223C	SDI-Systems and Battle Management	2	461,459	506,476	780,854	975,627 U
20	06032224C	SDI-Survivability, Lethality, and Key Support Technology	2	429,574	406,343	776,787	947,576 U
35	0604220C	Phase I Strategic Defense System	2			262,000	427,000 U
Advanced Technology Development							
91	0605098C	Management Headquarters (Strategic Defense Initiative)	6	3,532,974	3,606,424	5,564,110	6,643,637
Defensewide Mission Support							
Total Strategic Defense Initiative Orgzn				3,553,000	3,627,424	5,590,504	6,671,093

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Office of Secretary/Defense  
FY 1990/1991 R D T & E Program

Exhibit R-1

Appropriation: 0400 D Research Development Test &amp; Eval Def Ag

Date: 9 Jan 1989

Program Line Element No	Item Nomenclature	Act	FY 1988	FY 1989	FY 1990	FY 1991 c	Thousands of Dollars
3	0601103D University Research Initiatives	1	85,000	141,000			U
5	0601104D Defense University Research Instrumentation Program	1	24,608				U
7	0602108D Center for Advancement of Scientists, Engineers, and Technologists	1		3,000			U
	Technology Base		109,608	144,000			
21	0603225D Joint DoD-DoE Munitions Technology Development	2	15,768	16,738	8,179		8,598 U
25	0603706D Microwave/Millimeter Wave Monolithic Integrated Circuits (MIMIC)	2	49,465				U
28	0603736D Computer Aided Logistics Support	2	9,845	11,403	13,274		13,902 U
29	0603737D Balanced Technology Initiative	2	100,000	238,000	237,216		237,243 U
30	0603738D Cooperative DoD/VA Medical Research	2	15,000	17,000			U
32	0603740D Rankine Cycle Energy Recovery (RACER) System	2	5,000				U
33	0603756D Consolidated DoD Software Initiative	2	19,018	24,816	15,125		12,773 U
38	1110011D Force Enhancements-Active	2	10,827	10,245	16,012		16,577 U
39	1140011D Advanced Special Operations Research, Development and Acquisition	2	12,163	13,649	9,393		9,874 U
	Advanced Technology Development		237,086	331,851	299,199		298,967
42	0603741D Air Defense Initiative	3	49,224	156,131	257,151		296,055 U
	Strategic Programs		49,224	156,131	257,151		296,055
46	0603228D Physical Security Equipment	4		34,461	35,881		36,882 U
47	0604702D Joint Standoff Weapons Program	4	25,000	33,378	34,885		79,746 U

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Office of Secretary/Defense  
FY 1990/1991 R D T & E Program

Exhibit R-1

Appropriation: 0400 D Research Development Test &amp; Eval Def Ag

Date: 9 Jan 1989

Line No	Program Element Number	Item Nomenclature	Act	FY 1988	FY 1989	FY 1990	FY 1991 c
							Thousands of Dollars
49	0604771D	Joint Tactical Information Distribution System (JTIDS)	4	78,603	61,120	87,130	87,808 U
53	0305141D	Joint Remotely Piloted Vehicles Program	4	45,586	40,285	122,695	127,394 U
Tactical Programs							
56	0604703D	LANDSAT	5	10,000	169,244	280,591	331,830 U
Intelligence and Communications							
70	0603708D	Integrated Diagnostics	6	100,000		14,951	14,952 U
71	0603739D	Semiconductor Manufacturing Technology	6	147,675	151,629	99,671	99,682 U
72	0603790D	NATO Research and Development	6	16,619	18,796	26,071	27,269 U
73	0605104D	Technical Support to USD(A)	6	2,179	2,180	2,407	2,627 U
74	0605108D	General Support for PA&E	6	5,470	5,471	5,825	5,946 U
75	0605107D	General Support for Policy	6	3,525	3,753	3,907	3,969 U
76	0605108D	General Support for Net Assessment	6	1,531	1,531	1,575	1,702 U
77	0605109D	General Support for FM&P	6	3,175	3,174	4,206	4,421 U
78	0605110D	Technical Support to USD(A)--Critical Technology	6	16,259	17,261	18,683	19,775 U
79	0605112D	Rand National Defense Research Institute	6	2,354	2,354	2,222	2,361 U
81	0605116D	General Support to C3I	6	9,845	10,203	10,985	11,546 U
82	0605117D	Foreign Material Acquisition and Exploitation	6	2,558	2,558	3,249	3,415 U
83	0605119D	General Support for P&L	6				
84	0605134D	Threat Simulators Development	6		59,078		U

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Office of Secretary/Defense  
FY 1990/1991 R D T & E Program

Exhibit R-1

Appropriation: 0400 D Research Development Test &amp; Eval Def AG

Date: 9 Jan 1989

Program Line Element No Number	Item Nomenclature	Act	FY 1988	FY 1989	FY 1990	FY 1991 c	
							Thousands of Dollars
93 0702807D	Infrared Focal Plane Array	6	1,969				S
95 1001015D	Technology Security Functionals	6	484	434	2,348	2,497	U
	Defensewide Mission Support						
			313,643	278,422	196,100	200,162	
Total	Office of Secretary/Defense		868,750	1,079,648	1,033,041	1,127,014	

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Defense Advanced Research Projects Agency  
FY 1990/1991 R D T & E Program

Exhibit R-1

Appropriation: 0400 D Research Development Test &amp; Eval Def Ag

Date: 9 Jan 1989

Line Element No	Program Item Nomenclature	Act	FY 1988	FY 1989	FY 1990	FY 1991 C
						Thousands of Dollars
1	0601101E Defense Research Sciences	1	79,908	88,076	85,100	86,200 U
4	0601103E University Research Initiatives	1			25,000	25,000 U
6	0602101E Technical Studies	1	1,700	1,800	1,900	2,100 U
8	0602301E Strategic Technology	1	311,150	345,534	214,709	220,300 U
9	0602702E Tactical Technology	1	114,399	161,357	136,600	142,156 U
10	0602707E Particle Beam Technology	1	14,000	14,000	14,000	14,500 U
11	0602708E Integrated Command and Control Technology	1	32,293	32,188	34,000	38,000 U
12	0602712E Materials and Electronics Technology	1	61,490	33,040	31,000	42,800 U
13	0602714E Nuclear Monitoring	1	24,330	35,935	24,500	25,600 U
<b>Technology Base</b>						
22	0603226E Experimental Evaluation of Major Innovative Technologies	2	639,270	711,930	566,809	596,656
23	0603227E Relocatable Target Detection Technology Program	2	7,750	12,400	22,500	25,000 U
24	0603569E Advanced Submarine Technology	2		95,000		U
26	0603706E Microwave/Millimeter Wave Monolithic Integrated Circuits (MIMIC)	2		66,591	81,580	86,190 U
27	0603707E Prototyping of Advanced Technologies and Innovative Concepts	2			94,700	100,000 U
31	0603739E Semiconductor Manufacturing Technology	2		100,000	100,000	100,000 U
34	0603756E Consolidated DoD Software Initiative	2		36,180	32,426	33,600 U
37	0702807E Infrared Focal Plane Array	2		8,937	33,000	40,000 U
<b>Advanced Technology Development</b>						
						543,590

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Defense Advanced Research Projects Agency  
FY 1990/1991 R D T & E Program

Exhibit R-1

Appropriation: 0400 D Research Development Test & Eval Def Ag		Date: 9 Jan 1989					
Program Line Element No Number	Item Nomenclature	Act	FY 1988	FY 1989	FY 1990	FY 1991 C	Thousands of Dollars
80	0605114E BLACK LIGHT	6	3,600	3,600	6,000	6,000	U
85	0605502E Small Business Innovative Research	6	8,795				U
90	0605872E Productivity Investments	6	2,000				U
92	0605898E Management Headquarters (Research and Development)	6	15,034	14,458	16,506	17,789	U
Defensewide Mission Support			29,429	18,058	22,506	23,789	
Total Defense Advanced Research Projects Agency			872,387	1,286,592	1,120,821	1,164,035	

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National Security Agency  
FY 1990/1991 R D T & E Program

Exhibit R-1

Appropriation: 0400 D Research Development Test &amp; Eval Def Ag

Date: 9 Jan 1989

Line No	Program Element Number	Item Nomenclature	Act	FY 1988	FY 1989	FY 1990	FY 1991	Thousands of Dollars	
57	0301011G	Cryptologic Activities	5						U
61	0303401G	Communications Security (COMSEC)	5						U
65	0305159G	Defense Reconnaissance Support Activities	5						U
67	0305167G	Computer Security	5						U
69	0305885G	Tactical Cryptologic Activities	5						U

Intelligence and Communications

Total National Security Agency

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Defense Nuclear Agency  
FY 1990/1991 R D T & E Program

Exhibit R-1

Appropriation: 0400 D Research Development Test &amp; Eval Def Ag

Date: 9 Jan 1989

Program Line Element No Number	Item Nomenclature	Act ---	FY 1988 -----	FY 1989 -----	FY 1990 -----	FY 1991 C -----	Thousands of Dollars -----	S a
14	0602715H Defense Nuclear Agency	1	318,388	329,532	334,118	351,369	U	
	Technology Base		318,388	329,532	334,118	351,369		
40	0603711H Verification Technology Demonstration	3			20,000	19,000	U	
	Strategic Programs				20,000	19,000		
Total	Defense Nuclear Agency		318,388	329,532	354,118	370,369		

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Defense Support Project Office  
FY 1990/1991 R D T & E Program

Exhibit R-1

Appropriation: 0400 D Research Development Test &amp; Eval Def Ag

Date: 9 Jan 1989

Program Line Element No Number	Item Nomenclature	Act	FY 1988	FY 1989	FY 1990	FY 1991 C	Thousands of Dollars
63 0305154I	Airborne Reconnaissance Support Program	5	86,600	98,561	86,600	198,700 U	
66 0305159I	Defense Reconnaissance Support Activities	5	141,047	36,794	36,247	39,121 U	
	Intelligence and Communications		227,647	135,355	122,847	237,821	
Total	Defense Support Project Office		227,647	135,355	122,847	237,821	

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Defense Communications Agency  
FY 1990/1991 R D T & E Program

Exhibit R-1

Appropriation: 0400 D Research Development Test &amp; Eval Def Ag

Date: 9 Jan 1989

Thousands of Dollars

Program Line Element No Number	Item Nomenclature	Act	FY 1988	FY 1989	FY 1990	FY 1991 C	
36	0305108K Command and Control Research	2	2,541	2,362	2,471	2,584	U
	Advanced Technology Development						
41	0603734K Island Sun	3	46,657	56,797	59,406	62,133	U
43	0302016K National Military Command System-Wide Support	3	11,029	5,669	13,496	14,403	U
44	0302019K WWMCCS Systems Engineer	3	16,586	17,922	16,884	17,521	U
45	0303131K Minimum Essential Emergency Communications Network (MEECN)	3	9,180	9,747	8,013	7,856	U
	Strategic Programs						
50	0201135K CINC C2 Initiatives	4	1,756	1,876	1,962	2,051	U
51	0208045K C3 Interoperability (Joint Tactical C3 Agency)	4	61,715	60,264	50,549	52,316	U
52	0208298K Management Headquarters (Joint Tactical C3 Agency)	4	4,270	6,001	6,490	6,620	U
	Tactical Programs						
59	0303126K Long-Haul Communications (DCS)	5	17,999	17,897	19,046	19,987	U
60	0303127K Support of the National Communications System	5	3,664	3,908	4,093	4,280	U
	Intelligence and Communications						
	Total Defense Communications Agency		175,397	182,443	182,410	189,751	

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Defense Intelligence Agency  
FY 1980/1991 R D T & E Program

Exhibit R-1

Appropriation: 0400 D Research Development Test &amp; Eval Def Ag

Date: 9 Jan 1989

Thousands of Dollars

Program Line Element No Number	Item Nomenclature	Act	FY 1988	FY 1989	FY 1990	FY 1991 C	
58	0301301L General Defense Intelligence Program	5					U
68	0305884L Intelligence Planning & Review Activities	5					U
Intelligence and Communications							
Total Defense Intelligence Agency							

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## UNCLASSIFIED

Defense Logistics Agency  
FY 1990/1991 R D T & E Program

Exhibit R-1

Appropriation: 0400 D Research Development Test &amp; Eval Def Ag

Date: 9 Jan 1989

Line No	Program Element Number	Item Nomenclature	Act	FY 1988	FY 1989	FY 1990	FY 1991 C	Thousands of Dollars
48	0604722S	Joint Service Education and Training Systems Development	4			8,978	9,689 U	
		Tactical Programs				8,978	9,689	
86	0605711S	Critical Technology Analysis	6	29,019	23,019	4,488	4,227 U	
87	0605801S	Defense Technical Information Center	6	19,792	22,412	25,321	25,985 U	
88	0605802S	Information Analysis Centers	6	4,883	5,200	5,377	5,539 U	
89	0605803S	R&D in Support of DoD Enlistment, Testing and Evaluation	6			1,800	1,800 U	
94	0708011S	Industrial Preparedness	6	8,326	10,629	17,441	27,196 U	
		Defensewide Mission Support		62,020	61,260	54,427	64,747	
		Total Defense Logistics Agency		62,020	61,260	63,405	74,436	

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Uniformed Services University (USUHS)  
FY 1990/1991 R D T & E Program

Exhibit R-1

Appropriation: 0400 D Research Development Test &amp; Eval Def Ag

Date: 9 Jan 1989

Program Line Element No Number	Item Nomenclature	Act	FY 1988	FY 1989	FY 1990	FY 1991 C
2	0601101W In-House Laboratory Independent Research	1	2,442	2,070	2,223	2,350 U
	Technology Base		2,442	2,070	2,223	2,350
	Total Uniformed Services University (USUHS)		2,442	2,070	2,223	2,350